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IN MEMORIAM*

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NEW ORLEANS

We have gathered here tonight, as is our annual custom, to commemorate the name and to honor the memory of Dr. Stanford E. Chaillé. It is likewise the occasion when the Society pays tribute to those of our number whose labors in the service of medicine have been stilled and who have been called to a higher reward.

STANFORD E. CHAILLÉ

The Stanford E. Chaillé Memorial Meeting was inaugurated in 1926 to perpetuate the influence of this great man in the development of medical education in the South.

He was Dean of the Medical Department of Tulane University from 1885 until 1908. But he was indeed much more than Dean. He also held, with rare distinction, the Chairs of Physiology, of Hygiene and of Anatomy—to all of these he brought the same thoroughness and forcefulness that characterized everything he did. He was one of the founders of this Society as he was also of the Louisiana State Medical Society. His zeal, his enthusiasm, his executive talent and his untiring activity in the interest of the profession and the public weal were such as to entitle him to be referred to as the father of organized medicine in this city and state. Hygiene and public health were ever close to his heart and he worked indefatigably, in the face of much opposition and many obstacles, to have them recognized by State Legislation.

Dr. Chaillé was a gentleman of the old school. A Southerner by birth and by inclination, his sympathies were unalterably with the cause of the Confederacy and he gave the best of his unusual talent to the army of the South during the Civil War.

He was a splendid executive, a teacher who inspired and impressed his students with the clarity of his mind and by his practical application of the subjects which he taught and in which he had so wholehearted an interest.

He was keenly sensitive to the responsibilities of citizenship, a man of unswerving ideals whose honesty of purpose and sincerity of method was never challenged. He disliked ostentation. Unaffected and free from jealousies, he carried gracefully, and with an unusual lack of pretense, his elevated position and the many honors bestowed upon him.

My own personal acquaintance with Dr. Chaillé dated to an early childhood. My honored and late lamented father, Dr. A. L. Metz, for thirty-two years Professor of Chemistry, Toxicology and Medical Jurisprudence, whose loyal and faithful friendship and admiration for Dean Chaillé continued uninterruptedly until the latter's death, held him up to me in my youth as an example of wisdom, as a symbol of extraordinary ability and as a born leader of men. I remember clearly that he would refer to the Dean as "a great man who stands head and shoulders above his confrères." It was my duty each Saturday morning to wash bottles and assist in the preparation

*Read before the Orleans Parish Medical Society, December 5, 1939.

of reagents for the approaching teaching week at my father's laboratories in the old Medical School situated on Canal and Villere streets. Afterwards, I was invariably instructed to pay my compliments to Dr. Chaillé whose offices were on the opposite side of the building. And every week I "quaked in my boots" when I approached the Dean's office. He always seemed quite glad to see me and received me courteously and, I may also add, briefly, but nevertheless he kept me ill at ease. He would ask some commonplace question in that direct sharp manner of his, which ofttimes bordered on abruptness and I would promptly lose the power of speech. I recall him as small of stature, a large head on slender shoulders, bright piercing eyes under bushy eyebrows and a flowing white mustache above a firm chin. His carriage was that of easy dignity and his resolute figure was a familiar one on Canal Street where he walked daily to and from the Medical School to his home on Rampart Street.

These are boyhood recollections to be sure but are nevertheless still vivid and enduring, for the impressionable stage of youth carries with it a tenacious memory. His was a personality that indelibly stamped itself on all who came into his presence or within the range of his voice.

A speaker can do little for the perpetuation of the glory of extraordinary souls—"Their deeds alone can praise them." No other eulogy is of any effect where worthy names are concerned and it needs but the simple story of work and actions, faithfully performed, to create and sustain our regard and our respect for them. With the death of Stanford E. Chaillé organized medicine lost a courageous and staunch supporter, Tulane University a Dean and an executive who did a yeoman's service in the cause of medical education, the student body a splendid and effective teacher and the city and state a citizen who battled consistently for the rights of others.

In troubled times like these the medical profession could well use to its everlasting benefit the leadership of a Stanford E. Chaillé.

TO OUR RECENTLY DECEASED MEMBERS

Once again the dark spectre of death has cast the black cloak of mourning over the membership of this Society. This past year has witnessed the passing of seven of our fellow physicians; some have been cut down in the very prime of their professional life and usefulness, others in the evening of their long and serviceable careers. All carried to their end the finest traditions of the sons of Aesculapius. They blended the splendid assets of servers and leaders. They have left behind them a heritage of duty and of work well done. With rare exception, they were imbued with the knowledge that personal sacrifice and abrogation is a part of a doctor's daily life—never too proud to perform the most menial duty, brave enough and wise enough to serve with wisdom and to lead with valor. They lived their lives and practiced their art according to their individual lights. We miss their counsel and their friendships; we sympathize with their loved ones who are deprived of their companionship and guidance and as a Society we salute their memory and register our sorrow.

With bowed head we herewith regretfully record the names of:

Dr. George S. Bel

Dr. Maurice Joseph Gelpi (Honorary)

Dr. Julius Emanuel Isaacson

Dr. Abraham Louis Metz (Honorary)

Dr. William Henry Robin

Dr. Jacob Ambrose Storck (Honorary)

Dr. Arthur Weber

And again with the poet we say:

"Their life was gentle, and the elements so
mixed in them
That nature might well stand up and say
to all the world,
They were men!"

HEPATITIS

ITS ETIOLOGY, DIAGNOSIS, AND TREATMENT*

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The liver is one of the most important organs relative to the normal functions of the gastrointestinal tract. Hepatic disorders inevitably affect the digestive system. It is only in recent years that it has been given its proper place as a factor in many evident and obscure gastrointestinal complaints. A great deal of valuable experimental work has been done on the pathologic physiology of the liver, indicating the tremendous reserve function of the organ and its capacity for regeneration and repair.

ETIOLOGY

Inflammatory conditions of the liver are described under the gross term of "hepatitis" in contradistinction to the more or less benign enlargements on a non-inflammatory basis to which the term "hepatoses" is applied. Hepatitis may be part of a systemic disease, as seen in acute infectious and communicable diseases, syphilis, tuberculosis, and parasitic diseases, or it may be due to local disease of the extrahepatic biliary system, particularly cholecystitis and its associated changes. It may result from the absorption of toxic and obnoxious substances from the gastrointestinal tract. It may result from such hepatotoxic chemicals as hydrazine, phosphorus, chloroform, neoarsphenamine and other arsenicals, carbon tetrachloride, cinchophen, and as more recently reported even sulfanilamide. Parenthetically, it may be added here that the widespread use of arsenicals for parasitocidal food purposes has given rise to an increase in the incidence of arsenical hepatitis. The hepatoses, on the other hand, are due more or less to the enlargement of the liver on a non-inflammatory basis, such as fatty infiltration of the liver, marked passive hyperemia of the liver, and even an enlargement of the liver associated with blood dyscrasias. The changes which go on in the liver from any of these etiologic factors are dependent on the causative factor, and as a rule destructive and degenerative processes of the liver parenchyma follow. Simple atrophy, fatty metamorphosis, and focal necrosis, either confined to the region of the central vein of the lobule or affecting the entire structure, apparently represent the fundamental lesions associated with all types of hepatic injury. Acute atrophy of the parenchyma may be associated with acute obstruction of the common bile duct following the removal of the gallbladder, may be part of a thyrotoxic crisis, or may result from the clinical use of certain hepatotoxic drugs.

Chronic hepatitis may develop from frequent superimposed acute attacks to the extent that even a true cirrhosis may become evident. It is a well-known fact that in the presence of chronic obstruction of the outflow of bile, while regeneration goes on, the degenerative processes are so great that evidence of regeneration is entirely in the background. Furthermore, regeneration may be retarded unless the hepatotoxic factor is removed. Frequently the lipid substances of the blood may decrease to low levels and the cholesterol-esters may virtually disappear. The excretory functions, particularly in respect to dyes and bilirubin, are always impaired but as a rule not to the degree of liver damage.

PATHOLOGIC PHYSIOLOGY

The disturbance in carbohydrate metabolism as manifested by hyperglycemia or hypoglycemia is the outstanding and most constant result of severe injury to the liver. The liver has, at least, three separate functions directly concerned with the metabolism of dextrose: (1) glycogenesis; (2) glycogenolysis; (3) the production of dextrose and the deposition of glycogen from non-carbohydrate precursors (glycogenic amino acids and glycerol fractions of fats). The balance between glycogenesis and

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glycogenolysis allows the liver to function as a storehouse of readily available dextrose to be delivered into the blood stream in times of need. If, for instance, the glycogenesis alone was impaired, the hypoglycemia noted during fasting could be due to insufficient storage of glycogen in the liver, even though the glycogenolytic function was normal. On the other hand, the impaired conversion of glycogen to dextrose could account for the hypoglycemia without involving the glycogenic mechanism. This would result in the retention of an abnormally large amount of glycogen in the liver. Von Gierke's disease illustrates a type of hepatogenic hypoglycemia, the mechanism of which appears to be wholly on the basis of the disturbed glycogenolysis. In this disease, the liver is found to have a great excess of glycogen, indicating no disability in its deposition. Therefore, chronic hypoglycemia may be due to a deficient glycogenolytic mechanism.

Further, it has been shown that in the liver damage caused by arsphenamine poisoning in dogs, there is an associated fall in the concentration of chlorides of the plasma, the development of acidosis, and an increased content of lactic acid in the blood, along with a consistent hemoconcentration. The metabolism of chlorides, in this particular condition, is not clearly understood. The later elevation of concentration of urea and non-protein nitrogen may depend upon renal failure, associated with the hepatic insufficiency.

In cases of certain poisonings, anoxemia may be a factor resulting from hepatic injury. According to Snell and Keys,[1] it appears to depend upon a decrease in affinity of hemoglobin for oxygen as shown by displacement of the oxygen dissociation curve to the right, and finally they state that whether this can be attributed to some fundamental peculiarity of hemoglobin or to the admixture of other substances in the blood interfering with normal respirations as yet is undetermined.

Hemorrhage associated with the disease of the liver may result from the rupture of the collateral circulatory channels, or it may be dependent on some intrinsic change in the coagulating properties of the blood. Hemorrhages resulting from the former condition are well known in clinical medicine, but it is only recently that Quick and his associates[2] have clarified the question of the intrinsic change in the blood *per se*. He was the first to note that the deficiency was probably that of the prothrombin of the blood, all other elements necessary for the coagulation being present in normal amounts. This has been corroborated by other investigators.

Hawkins and Brinkhous[3] have noted, in studying the hemorrhagic states induced in dogs by complete biliary fistula, that a deficiency of prothrombin was present and could be corrected by the feeding of bile. This would seem to indicate that one of the factors necessary for the maintenance of the normal level of prothrombin is the presence of bile in the bowel. The bile is necessary for the proper assimilation of an additional factor, the so-called vitamin K (coagulation vitamin), which has been shown experimentally to be found in the unsaponifiable non-sterol fraction of hog liver and in alfalfa. Thus, these two factors, the presence of bile in the bowel and the hypothetical fat soluble vitamin, are of importance in maintaining the normal level of prothrombin. In addition, changes in the liver itself may produce a difference in the prothrombin concentration and its manufacture. This latter factor may be associated with toxic changes in the liver. It was formerly thought that the coagulation of blood in liver disease was associated with a disturbance of calcium metabolism, but more recent clinical and experimental evidence has shown this not to be a fact.

SYMPTOMS

The symptoms of liver disease are variable, and again are intradependent on the etiologic factors. Either the disturbance of bilirubin metabolism may manifest itself in the clinical findings of jaundice or there may be just an increase of serum bilirubin without any staining of the tissues. This latter form of jaundice is called latent jaundice, and it is only demonstrable by colori-

metric tests on blood serum. One of the most important excretory functions of the liver is the elimination of bile. The liver manufactures bilirubin in its reticulo-endothelial system and it also secretes bile pigment through the polygonal cells of the liver into the bile capillaries. Therefore, it is evident that any changes in the bilirubin content of the blood stream would be significant of liver damage except in cases of hemolytic jaundice. It is to be remembered that unless the concentration of serum bilirubin is 1:100,000 or more then none of the tissues apparently become stained, and it is not until the concentration is approximately 1:50,000 that bilirubin apears in the urine, so that liver damage must be sufficiently great before clinical evidence of jaundice is present. Frequently associated with this, except in dissociated jaundice, namely that of the hemolytic type, is also a disturbance of bile salt metabolism. However, in cases of prolonged obstruction the liver ceases to manufacture bile salts. Today, we measure the degree of bilirubinemia by the icterus index and the qualitative and quantitative van den Bergh test, with which I am sure you are all acquainted and there is no need to enter into a discussion of them at the present time.

The next important feature of liver disease, which has been alluded to previously, is the disturbance of carbohydrate metabolism. Early or mild liver disease usually manifests itself by hyperglycemia. Late or severe liver disease results in hypoglycemia. Hypoglycemia may be responsible for simple fatigue, with weakness. When marked the reaction may be comparable to that to an overdosage of insulin, in which the patient shows evidence of hypoglycemic shock. I have seen patients with the appearance of an acute surgical abdomen in hypoglycemic shock similar to that sometimes seen in patients with diabetic acidosis. The patients are dull, apathetic, complain of nausea, headache, vertigo, and may even have vomiting and occasional episodes of diarrhea, particularly when there is an associated pancreatitis with a coexisting disturbance of the fat digestion. Fever may not be an uncommon symptom, and a low grade fever over a period of time frequently has been noted in liver disease when all other causes have been excluded. Acute crises of abdominal pain, other than that due to hypoglycemic shock, are not at all uncommon in the clinical picture of hepatitis.

One frequently may make the mistake, in patients who suffer from acute atrophy of the liver due to poisoning, with a very marked jaundice, and acute exacerbations of pain, that the patient has an obstructive type of jaundice. However, it is to be remembered that the pain in these cases is not due to the obstruction of the biliary passages but is due to the fact that the liver capsule is stretched in the process of rapid regeneration of the liver, and this stretching of the liver capsule accounts for the acute pain, the same as it would account for the pain which occurs in acute right ventricular heart failure with extreme passive congestion of the liver and a consequent stretching the liver capsule. Anyone who is conversant with the necropsy findings in these cases can well correlate the clinical picture with the changes found in the liver. Inflammation of the liver may be present and tenderness may be a constant finding, even in the absence of gallbladder pathology. However, when the liver becomes smaller in size, tenderness and pain, as a rule, are not frequent findings. The blood may show evidence of a secondary anemia of the hyper- or hypochromic type, depending upon the pathology of the liver. Leukocytosis in acute infections is common. However, in overwhelming disturbances of the liver, leukopenia may be seen.

CHOLEMIA

One of the most serious manifestations of parenchymatous injury of the liver is hepatic insufficiency. Like the uremic state it is not very well understood. It does not closely simulate the syndrome produced by hepatectomy in animals. However, there are disturbances of carbohydrate metabolism that may be severe. In this condition, the patients, as a rule, become exceedingly anxious about themselves and are apprehensive, the pulse becomes very rapid, they may break out in a cold perspiration, slight

cyanosis may be evident about the face, and later convulsive seizures may not be uncommon. The temperature, as a rule, becomes subnormal and when the process is severe enough, in spite of the therapeutic approach, they usually die.

The clinical syndrome often suggests acute intoxication and probably represents the failure of normal processes of detoxification of the liver. Since the liver is the first line of defense against endogenous and exogenous toxins, then when this function fails, the load may fall on the kidney with resulting renal insufficiency. Experimentally there has also been shown a consistent hemoconcentration in animals. In humans, while it never reaches this severe degree, there is some concentration of the blood and hypochloremia may occur. Elevation of the concentration of the urea of the blood and hypochloremia may occur. Elevation of the concentration of the urea of the blood and non-protein nitrogen may be associated with a coexistent renal failure. Acidosis, as manifested by low carbon dioxide combining power and the changes in the pH of serum, has been observed. The anoxemia, as stated above, manifesting itself in the clinical cyanosis, may be dependent upon a decrease in affinity of hemoglobin for oxygen in liver disease. Finally, chronic atrophy or cirrhosis may develop on the basis of repeated episodes of acute injury to the liver, and when these changes do take place the associated findings of either hypertrophic biliary or atrophic cirrhoses may become evident, and the clinical picture of this condition need not be repeated at this time.

DIAGNOSIS

In the diagnosis of hepatitis the causative factors form a very important part. However, very frequently the etiologic considerations may not only be not evident but entirely in the background and one is dependent upon the clinical manifestations and the subsequent laboratory findings to clarify the clinical picture. As has been mentioned before, disturbances in bilirubin metabolism may be an important feature of this disease. The evaluation of the degree of bilirubinemia is well known to you. Associated with this disturbance in bilirubin is also the estimation of the amount of urobilinogen secreted in the urine. Urobilinogen is formed from the action of bacteria on bilirubin in the small intestine. It is then resorbed into the blood stream and excreted in the urine. In cases of complete biliary obstruction, urobilinogen is usually absent from the urine, and it also may be absent during the height of an attack of so-called catarrhal jaundice, but may be present during the beginning and end of an attack.

Urobilinogen in the urine, according to Piersol and Rothman,[4] is probably the most delicate sign of liver dysfunction. It is always increased, even when the injury to the parenchyma is slight, or when excessive blood destruction brings about an increased bile pigment formation. From the experience of these authors, urobilinogen is constantly increased to a noteworthy degree in portal cirrhosis, and there was a slight increase in urobilinogen noted from time to time in a limited number of patients in whom liver disorder was suspected but not evident clinically. In many conditions, a persistent increase of urobilinogen was indicative of a residual hepatitis.

TESTS OF LIVER FUNCTION

Numerous functional tests have been devised for the evaluation of disturbances of liver function. However, no one functional test, at the present time, is of absolute diagnostic value and all of them are of a contributory nature. Too much reliance is placed upon the significance of any one individual test, and in this one field clinical judgment based on long clinical experience assumes a major role. For the sake of brevity, it might be mentioned that the more frequent tests are: First, the *galactose tolerance test*, which is based upon the assumption that the liver alone changes galactose to glycogen; any impairment of this function of the liver causes galactose to appear in the urine whether it be given by the oral or intravenous method. A total output of galactose exceeding 3 grams constitutes a positive test. Errors that might accrue

from this test are probably due to the malabsorption of galactose caused by gastric stasis, delay in absorption secondary to passive hyperemia of the gastrointestinal tract present in certain types of chronic hepatic disease, faulty excretion of sugar due to renal and vesical factors, oliguria caused by dehydration, or acute renal injury associated with primary hepatic lesions, functional retention of urine in the bladder and the residual urine of an hypertrophied prostate gland. There are other sugar tests but the galactose is the most commonly used.

Second: *The hippuric acid test.* One of the main functions of the liver is its detoxicating action. In order to study this phase of liver dysfunction, the synthesis of hippuric acid was studied after the ingestion of sodium benzoate. Normally the excretion of hippuric acid averages about 700 mg. per day. This is increased by the ingestion of benzoate or the precursor of benzoic acid which occurs in plums and cranberries. Quick and his associates,[2] utilizing this evidence, devised a test in which 5.9 grams of sodium benzoate in 30 c.c. of water were given one hour after a breakfast of coffee and toast. This was followed by one-half glass of water. The patient voids and then urinates every hour for four hours. The specimens are acidified to Congo red with hydrochloric acid. The precipitation of hippuric acid is collected on a filter paper, dried, and weighed. The total hippuric acid eliminated by the liver, with some reserve, is from 3 to 3.6 grams. It has been found that the rate of synthesis of hippuric acid is well correlated with the degree of hepatic injury, the general clinical picture of the patient, and the degree of bilirubinemia. However, it is to be mentioned that a negative hippuric acid test does not exclude entirely a critically damaged liver. When the excretion of hippuric acid is 1.5 grams or less a severely damaged liver is usually present. It should be parenthetically expressed here that any surgical procedure, unless there is immediate need for surgical interference, should be delayed until there is a near normal excretion of hippuric acid.

In cases of intrahepatic jaundice, particularly those caused by cinchophen, the hippuric acid test gives results that correlate to a high degree with those of the galactose test and the value for serum bilirubin. More recently, this test has been modified for intravenous use and here 1.77 grams of sodium benzoate are dissolved in 20 c. c. of distilled water and given intravenously. A specimen of urine should be collected before the test begins and then again one hour after the end of the injection. Approximately five minutes should be required for the injection. During the first hour in normal healthy adults, 0.7 to 0.95 gram of hippuric acid is excreted.

Third: *The Takata-Ara test* has been used by some in the diagnosis of cirrhosis. However, the clinical manifestations of the disease are so apparent that the test is of little value.

Fourth: *The cholesterol and cholesterol-ester fraction.* The liver is presumed to be a factor in cholesterol metabolism. The esterification of cholesterol goes on in the liver. Normally the blood cholesterol is between 150-230 mg. per 100 c. c. As a rule, the cholesterol-ester fraction is 50 to 70 per cent of the total cholesterol. In patients with liver damage, frequently the cholesterol-ester fraction is reduced in proportion to the extent of liver damage. Since this is a physiologic function of the liver it assumes a major importance as a test for liver function and may be of definite prognostic value before and after surgical interference for gallbladder disease, and in certain types of liver damage. When the cholesterol-ester fraction is below 50 per cent it is definitely indicative of liver damage, and as the liver adequately repairs itself the esters also rise in corresponding proportions.

Fifth: *The albumin-globulin ratio.* Observations on the changes in serum albumin and globulin in hepatic disease have been recognized for many years. There is some difference of opinion as to the clinical significance of these changes. However, recent studies on patients with cirrhosis of the liver have shown that the total plasma protein value was decreased and particularly the albumin fraction. In my experience, I have found in cirrhosis of the liver and

other hepatic diseases that the albumin-globulin ratio approaches a value of 1:1. However, this is not evident as a rule without corresponding clinical manifestations of liver disease. Furthermore, other evidence obtained from liver functional tests usually paralleled this observation on the change in the albumin-globulin ratio. It is necessary, however, to rule out other causes of disturbance in the albumin-globulin ratio, particularly in cases of nephrosis, severe alkalosis, and even in some cases of marked hypothyroidism. Most investigators feel that decreased levels of serum protein in instances of hepatic injury probably result from the failure of protein or protein building substances of the liver, in addition to the alteration in the equilibrium between the circulating and stored protein. In patients with ascites it may be the loss of albumin in the ascitic fluid or the increased capillary permeability allowing the escape of protein into the tissues that is the primary factor in the reduction of the amount of albumin in the serum.

Sixth: *Bromsulfalein.* Of all the dye tests for the excretory function of the liver, probably the most commonly used is that of bromsulfalein. As a rule 5 mg. of bromsulfalein per kilogram of body weight are injected, and a single specimen of blood is taken at the end of one hour. The amount of dye present in the serum is determined by the transverse comparison of the serum with standard tubes in a colorimeter. According to Magath,[5] retention of the dye occurred in 96 per cent of the patients in whom there was evidence of parenchymal hepatic injury or even moderate mechanical obstruction of the bile ducts which had not yet produced clinically demonstrable jaundice. Low grade retention of the dye (less than 12 per cent but more than 4 per cent) is significant, since low grade retention occurs very rarely without evidence of hepatic disease. Israel and Reinhold[6] feel, from their observations, that bromsulfalein is one of the most sensitive and accurate tests that they have studied and might be the only test that would frequently reveal hepatic disease.

Seventh: *Sodium tetraiodophenolphthalein,* which is based upon the Rosenthal Rowntree test for the secretion of phenoltetrachlorphthalein, makes it possible to do a combined liver functional and gallbladder functional test on the same patient. Intravenous injection of a solution of 2 1/2 grams of this salt is usually given and samples of blood taken one-half and one hour after injection. Normally patients excrete all but 15 per cent of the dye at the end of 30 minutes and all but 5 per cent at the end of 60 minutes. Graham and his coworkers[7] maintain that the retention of 12 per cent at the end of one hour may be a contraindication for surgical intervention and indicative of definite liver damage.

Eighth: *The Rose Bengal test,* similar to other dye tests, depends upon the ability of the liver to remove the dye from the blood within a certain period of time. This test gives results comparable to those obtained with bromsulfalein. The difficulties, however, rise from the fact that a satisfactory standard is hard to obtain.

Ninth: More recent studies on the *bilirubin clearance test* (the rate of disappearance of injected bilirubin from the blood) show it to be a very sensitive test for liver function, and evidence is accumulating to bear this out.

It is reasonable to conclude, from the above named tests, that the nearer the test approaches the physiologic function of the liver the more clinically significant it should be. There are numerous other tests of liver function, but they are not important enough to discuss at this time.

TREATMENT

The fact that there is liver damage having been established, the removal of the etiologic factor assumes a major role whenever it can be found. For instance, in cases of poisoning it is self-evident. For repeated damage of the liver from associated gallbladder disease cholecystectomy should be done during a quiescent period, or at least a cholecystostomy as a temporary measure before later cholecystectomy.

As it has been stated before, the glycogenic function of the liver is one of its most important functions. It is also known that

a liver rich in glycogen is much more resistant to damaging agents than a liver which is poor in glycogen. It is therefore important to increase the liver glycogen. It is to be remembered that in cases of liver damage it takes a higher concentration of glucose in the blood stream to enable the damaged liver cells to store adequate amounts of glycogen. In other words, the amount of glucose absorbed from the gastrointestinal tract, even under the influence of a high carbohydrate intake, may not result in a high enough blood sugar level to allow the liver cell to take it out and metabolize it into glycogen. It is evident from this that high carbohydrate diets in cases of severe hepatic damage should be supplemented by the parenteral administration of sugar.

For these reasons and others, it has been found that if glucose is given intravenously in hypertonic solutions it reaches the liver in a much higher concentration and the liver is therefore able to take it out and manufacture it into glycogen. This, in turn, helps materially to repair liver damage. Particularly is this true in cases of hepatic insufficiency, and it has been shown by Jones[8] in those individuals who have received glucose intravenously for ten days or longer that the mortality rate was lowered 22 per cent. In view of the fact that hepatic insufficiency has been regarded as almost invariably fatal, these results are encouraging. Some clinicians have used insulin with this intravenous sugar administration with the thought that they might more rapidly metabolize the sugar. However, investigations have shown that not only is this not true but it may actually decrease the amount of glycogen deposited in the liver. Therefore, unless there is a diabetic condition present, insulin should not be given along with hypertonic glucose solutions in the treatment for hepatic damage. When glucose is given intravenously it is not necessary to give it in normal saline unless there is evident lowered chloride in the blood stream. Furthermore, the introduction of solutions in the blood stream will help correct the hemoconcentration, which occurs in hepatic diseases. After liver repair has taken place high carbohydrate intake by mouth can be kept up, and the liver will then be able to utilize the glucose absorbed from the gastrointestinal tract even though it is in lesser concentration.

In patients with atrophic cirrhosis of the liver, with marked ascites, the repeated intravenous injection of 50 grams of 50 per cent glucose daily has produced a very marked improvement in their clinical picture. The glucose not only repairs the damaged liver, but it also acts as a diuretic, and in many of these patients paracentesis is unnecessary. I have seen patients who have been in a hopeless condition return to their normal existence after this method of approach. It is important, of course, during this time to continue to keep up a high carbohydrate intake, and to abstain from the use of alcohol or any other substance which may predispose to liver damage. By this method an improvement in the liver takes place.

The second factor concerned is the decrease of the portal venous pressure. This may be brought about by the Talma-Morison omentopexy. However, the results of this have not been generally gratifying. Others have produced a partial enterectomy which may serve the purpose of reduction of the portal venous flow on one hand and the area of serous surface through which transudation may occur on the other hand.

Thirdly: Since the colloid osmotic pressure is reduced in patients who have cirrhosis because of the hypoproteinemia and the reversed albumin-globulin ratio, attempts to elevate the concentration of protein in the plasma are an important feature in the therapy of this disease. This may be accomplished by re-injecting the ascitic fluid into the blood stream, or by producing a permanent drainage of the ascitic fluid in the proximal end of the saphenous vein. These two procedures, of course, should be used only as a last resort.

Further, in addition to the high carbohydrate diet, a high protein intake is desirable. However, since one is giving glucose intravenously the amount of carbohydrate in the diet can be proportionately reduced while the protein, on the other hand, is in-

creased. Transfusions of blood and plasma have been beneficial in increasing the protein content. More recently, concentrated solutions of acacia, which raise the osmotic pressure of the serum, have produced diuresis in some patients who have a hypoproteinemia. An injection of 500 c. c. of a solution of 6 per cent acacia on three consecutive days frequently will produce a temporary rise in the osmotic pressure of approximately 20 per cent, and a change sufficiently great to retard the accumulation of fluid. Too large doses should not be used at any one time because they may produce hepatic damage and therefore depress the total protein still further.

Field[9] has shown that the giving of large doses of vitamin B complex parenterally may elevate the concentration of proteins of the plasma and retard transudation even when such a rise in concentration is not large. Others have recommended the use of all types of vitamins in this disease, parenterally and orally. Increasing clinical experience indicates that vitamins, especially vitamin B_1 and vitamin B complex, are beneficial in treatment of diseases of the liver. In this connection it is to be remembered that liver extracts contain vitamin B_1 in considerable quantities.

I have found that the use of intramuscular injections of liver extract may be beneficial and produce changes in the nitrogen balance and in the retention of protein. Other attempts have been made to change the nitrogen balance, and experimental evidence is accumulating to show that mixtures of amino acids intravenously may help to solve the problem of hypoproteinemia.

The time-honored methods of treating ascites and edema associated with this disease, of course, should be used, but in moderation. It is not necessary today in the light of our newer knowledge of the therapy of liver disease to dehydrate a patient with mercurial salts and brisk catharsis as was formerly done. Attempts should be made to correct the liver damage and change the colloid osmotic pressure in the blood rather than to continue to insult the patient with repeated injections of diuretics and cathartics. Occasionally one may produce fatal hepatic insufficiency through the overdosage of these drugs. Paracentesis may have to be used, depending upon the clinical picture of the patient.

OTHER THERAPEUTIC PROCEDURES

In patients with low grade hepatitis, in addition to the above outlined therapy, I have found it of value at times to use empirically potassium iodide in doses of 10 to 15 grains, three times a day. It seems that the potassium iodide in these cases, as in syphilis, has some beneficial effect on liver damage. If, for instance, a patient with a very definite bilirubinemia in whom high carbohydrate diet, intravenous administration of glucose, and potassium iodide by mouth do not show a diminution in the serum bilirubin, then the prognosis is not so good, and one may have to resort to surgical intervention, particularly in gallbladder disease, because of the danger of more severe damage of the liver taking place.

In cases of hepatitis associated with poisonings, the time-honored methods are still pre-eminent. However, in cases of heavy metal poisoning the intravenous injection of sodium thiosulphate may be of distinct benefit in addition to the other therapy.

The treatment outlined by older clinicians of mild cholagogues in the way of saline cathartics, such as citrate of magnesia, effervescent sodium phosphate, or even magnesium sulphate, have their place. The use of duodenal drainage as a therapeutic agent in this disease, to my mind, is of no particular value. In the first place, one can accomplish the same results without the use of a tube. Secondly, the withdrawal of large amounts of bile from the system may be harmful. Thirdly, since bile is necessary for the absorption of vitamins from the gastrointestinal tract, its withdrawal may deplete the vitamin storage in the body. Furthermore, I have seen an increased tendency to hemorrhage in cases of liver disease following persistent transduodenal drainage, the same as may occur in patients with biliary fistula. With those who care to use duodenal drainage as a diagnostic

procedure I have no quarrel, but as a therapeutic agent I see no value.

Bile salts administered to patients with viosterol (vitamin D) insure its absorption, the same as vitamin A is absorbed when bile salts are present in the intestine. The use of bile salts and bile acids in increasing the volume output of the liver is of value in the treatment of patients with hepatitis, and particularly in patients who have no obstruction to the outflow of bile, in whom it will increase the amount of bile secretion into the intestine. Bile salts aid in the digestion and absorption, and they act on the liver to increase the output of bile. Pure bile, under normal conditions, does not increase the output of pigment but it may do so in the presence of hyperbilirubinemia. Pure bile salt, given orally or intravenously, increases the total output of cholesterol in bile. Bile salts stimulate the formation of bile and act as a source of laxative for the biliary passages. Bile salts keep the fatty acids in aqueous solution, and this acid reaction in the gallbladder bile prevents the precipitation of cholesterol and fatty acids in the gallbladder, and there is considerable evidence in the Japanese literature that bile salts improve the glycogenesis in the liver. Therefore, in the treatment of hepatitis, it is advisable to use bile salts and even bile acids in order to increase liver function.

TREATMENT OF HEMORRHAGE

In the treatment of hemorrhage in this disease it is important to remember, as has been stated before, that an attempt should be made to elevate the prothrombin content of the blood. This may be done by the administration of extracts containing vitamin K together with bile or bile salts to patients who have jaundice, or one may administer bile alone to an individual who is ingesting an adequate diet. However, the administration of vitamin K alone without bile in patients who have obstructive hepatic jaundice is of no particular value. Blood transfusion is only a temporary relief, and does not produce any reduction in the prothrombin time in the blood. It is important again to re-emphasize the combined use of vitamin K and bile, which may be introduced by a duodenal tube in these patients, to reduce the prothrombin time and prevent and control active bleeding.

Finally, one should not become unduly alarmed by the presence of jaundice. Icterus indexes of 30, 40, 50, or 60 are not alarming. I have seen patients with icterus indices of over 200 get well without any surgical intervention. The clinician is too anxious, at times, in the presence of an increased bilirubinemia, to recommend surgical intervention. However, I would like to impress upon you the need for conservative, sound clinical judgment in handling diseases of the liver, remembering that the liver is one of the most important organs in the digestive system.

SUMMARY

Thus, today we are no longer in the dark in the management of liver disease. The laboratory and scientific approach have put us in a position, as never before, to understand this problem. Our new knowledge of therapeutic approach and our ability to estimate what is going on in patients at all times have taken many a patient from a hopelessly invalided existence to one of a near normal and more optimistic outlook on life.

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DISCUSSION

Dr. D. N. Silverman (New Orleans): I want to add a few words in regard to the clinical aspect

of hepatitis, as we see it here. I guess I owe you an apology for bringing up the subject of dysentery again, but it is so prominent in my mind that we do have, as a not uncommon complication of dysentery, acute hepatitis, that must be looked for in this condition, just as we should for other more disastrous complications as proved by diarrhea. Dysentery may be treated specifically and subside, but secondary developments with the recurrence of fever may denote an inflammatory development with acute hepatitis. Then, of course, treatment has to be directed towards the liver more than in former days of acute fulminating dysentery.

I am leery about the use of arsenic, and certainly more so when there is any involvement of the liver. Occasionally, there is abscess, but more frequently there is disseminated infection of the liver. On exhibit at this meeting, I had two cases of acute hepatitis complicating acute fulminating bacillary dysentery, in which there was subsidence of bloody stools and fever for a few days when exacerbation occurred, and examination of the patient subsequently showed enlargement of the liver.

Syphilis of the liver is certainly not a rare condition in its various manifestations. Syphilis of the liver in 50 per cent of cases will show a positive Wassermann, but those enlarged livers in the chronic dyspeptic must often be suspected of being syphilitic hepatitis. In such cases, after the administration of iodides, for example, subsequent examinations will show a positive Wassermann. In syphilis of the liver with partial obstruction, which looks like a severe disease because of the patient's loss of weight, ascites, and subsequent severe conditions developing gradually, the Wassermann may be repeatedly negative, but in a few patients I had the ascitic fluid was strongly positive.

In other conditions of liver disease due to secondary degeneration, such as cirrhosis, we must go further than the different measures directed towards the liver. In such cases, it is true, glucose solution will help us, but it appears that better circulation to that organ and to the kidney—for there is a renal syndrome finally in cirrhosis—is needed and these conditions are improved by the combination of aminophylline with the glucose solution; it gives better results than just simple glucose.

One word in closing in reference to the continuation of liver disease by conditions of an inflammatory nature. I do not know which comes first. The best treatment is removal of the gallbladder containing crystalline stones. I still believe there is a place for the duodenal tube, for although the gallbladder and stones have been removed, drainage of the duodenum will remove the crystals. Digestive symptoms are automatically relieved by a cholesterol free diet in those cases.

Dr. Allan Eustis (New Orleans): There is very little I can add to what Dr. Portis said. I would like to expand on some of the remarks made. He spoke about the blood dyscrasias and liver involvement. It is a question which is first and which is secondary. I was very much impressed by this in a patient recently observed who died about a week ago. I had observed this man for 25 years. He started with hypertensive heart disease, had passive congestion of the liver, and I had been treating the liver for 25 years. He had definite symptoms of a chronic gallbladder but refused operation, but finally in 1935 he was forced to have a cholecystectomy. At operation, the liver was found to be hob-nailed. Up to that time he had no blood dyscrasias whatever. So far as there was any knowledge of it, and so far as we could tell, he had primarily a liver condition. About a year ago, he began to develop anemia, which was progressive in character, and finally, he developed aplastic anemia from which he died. Large doses of liver extract were given without any result. The liver was enlarged and hob-nailed at autopsy and the spleen was rather enlarged, also rather fibrous in character. I have not had a report on the bone marrow yet, so I do not know what was the cause.

The point I want to emphasize is that we do have a severe blood dyscrasia secondary to liver disease rather than liver disease secondary to blood dyscrasia.

One other point I want to emphasize and that is the association of liver disease in thyrotoxicosis. We often forget the liver in this condition. I wish to emphasize the importance of high carbohydrate diet and low protein diet in the treatment of acute thyrotoxicosis preparatory to operation.

I would like to stress the differential diagnosis between obstructive jaundice and severe jaundice from acute hepatitis from poisons such as arsphenamine. In these cases, there is one important point and that is in obstructive jaundice, if the jaundice has obtained for four days, there is a negative aldehyde test; there is no urobilinogen in the urine. On the other hand, in hepatitis there is always a positive aldehyde test and a very strong one.

Another point is, as Dr. Portis stated, that the liver is the first line of defense to endogenous and exogenous poisons. You are familiar with the damage of arsenic and other exogenous poisons, but there is also the influence of intestinal poisons. I am firmly convinced that the absorption of intestinal poisons has a deleterious effect on the liver. You will recall also many years ago the paper I read before the society on the treatment of liver disease in which I brought out the importance of carbohydrate feeding, and that that paper said the day will come when the obstetrician who has a case of eclampsia in practice will be

as open to criticism as one with a case of septicemia.

One other point I wish to call attention to—many general practitioners overlook liver dysfunction in cardiac failure. Dr. Portis called attention to passive congestion of the liver in this condition. I again wish to emphasize the importance of thinking of diet in treating heart conditions.

Dr. Sidney A. Portis (In conclusion): Dr. Silverman emphasized the fact that hepatitis may be associated with cases of bacillary dysentery. This fact has been known for many years, and focal necrosis may occur from bacillary dysentery similar to that produced by typhoid fever.

The question of duodenal intubation and its therapeutic advantages has again been raised. I am not at all convinced that the aspiration of large amounts of bile is advantageous to the body economy, and if continued routinely may affect the amount of vitamin absorbed from the gastrointestinal tract. Furthermore, I have seen patients with biliary fistula develop a hemorrhagic diathesis which is difficult to control. In answer to the question as to whether or not blood dyscrasias are the precipitating factor or the result, I can only say that it works both ways. I would, however, in this connection, like to emphasize one type of blood dyscrasia, which I think is related to liver disease, that is a group of patients who have chronic cholecystitis, a hypochromic anemia with leukopenia, and an achlorhydria. If this cycle is not broken up by a cholecystectomy, patients frequently develop a true hyperchromic or pernicious type of anemia.

The changes that go on in the liver as the result of right ventricular heart failure are frequently overlooked, and therefore a high carbohydrate, maintenance protein intake should be indicated in patients with this type of heart disease.

The question of thyrotoxicosis in liver disease and the need for a high carbohydrate, low protein diet as a protective measure in thyrotoxicosis has been raised. If I may digress on that point, I should think that the reason for the high carbohydrate diet in a thyrotoxicosis is interdependent on several factors: Firstly, the increased rate of metabolism; secondly, the need for adequate carbohydrates to metabolize fat; thirdly, since the glycogenic reserve of the liver is reduced because of the utilization of this glycogen, adequate sugar should be given; fourthly, it takes much more energy on the part of the body to metabolize proteins than it does carbohydrates, even though the former is a factor in the increased glycogenic reserve of the liver; fifthly, it has been known for some time that carbohydrates, particularly lactose, are a factor in changing the proteolytic flora to aciduric flora. There is some evidence in the literature that calcium is more readily absorbed in the presence of an aciduric medium. Therefore, if one should possibly develop a postoperative hyperparathyroidism, this type of diet should be an added protective measure, and it has been known experimentally to prevent tetany in animals who have been subjected to thyroid-parathyroidectomy.

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THE DIAGNOSIS AND TREATMENT OF URINARY INFECTIONS IN CHILDREN*

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Pyelitis is a common disease in childhood. It occurs four times more frequently in girls than in boys over one year of age, and below one year the incidence is about equal.

CLASSIFICATION OF PYELITIS

For clinical purposes pyelitis can be divided into three groups. Group one includes the many cases that occur concurrently or secondarily to an acute infectious disease. Most of the patients in this group get well without any specific treatment. Group two are those cases which clear up and remain well following treatment with urinary antiseptics. Group three is the one that I particularly want to bring to your attention. It consists of those cases of acute and chronic pyuria whose urine continues to show 2 to 5 or more pus cells per high power field after one month's intensive medical treatment, and those cases of pyelitis that recur repeatedly.

Acute pyelitis is relatively simple to diagnose. The onset is usually sudden with or without a chill, high fever of the hectic type, vomiting, dysuria, frequency and loss of appetite. There may or may not be tenderness over the kidneys. The high fever usually lasts about a week and then drops by crisis or lysis. It is well to remember that the urine taken early in the disease may not show very much and therefore repeated specimens are advised. The urine in these cases shows pus, blood, casts, and bacteria. The colon bacillus is the offending organism in 50 per cent of the cases;

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staphylococcus and streptococcus occur less often, and very frequently a mixture of organisms is found.

A word here about the collection of specimens. The penis in males should be thoroughly cleansed with soap and water, and a catheterized specimen in girls is the only one worthy of examination. This may be obtained by cleansing the vulva and passing a small soft rubber catheter, or in very young children by using a ureteral catheter.

The *pathology* in these cases is not a simple inflammation of the kidney pelvis. A true pyelonephritis exists with acute inflammatory changes in the parenchyma as well as in the pelvis of the kidney, whether the infection be of retrograde, lymphatic, or hematogenous origin.

TREATMENT OF ACUTE PYELITIS

The treatment of acute pyelitis in children consists in the free administration of fluids by mouth and by needle, the correction of toxemia and acidosis, and careful attention to bowel elimination.

Until recently alkalies were about the only drug that was advised in this very acute stage, but since sulfanilamide has been introduced we now have a potent urinary antiseptic available.

Children tolerate sulfanilamide well, apparently even better than do adults. The usual dose is from 10 to 30 grains daily for children under two years (approximately 10 grains per 20 pounds of body weight). Between two and six years from 30 to 40 grains daily and from six to thirteen years from 30 to 50 grains daily. Summerfeldt and Mitchell report cases of children under two years old in whom 50 grains of sulfanilamide daily were used with no untoward effect. They reported 75 per cent cures, which is much higher than is usually seen in adults. They reported minimal toxic symptoms from the drug and found only one patient who developed severe cyanosis and was unable to continue with it. An equal or larger dosage of alkali should be administered with the sulfanilamide as it appears to be more effective in an alkaline urine, and this also tends to overcome the acidosis that must be carefully watched for in these toxic infants.

Sulfanilamide is most effective on colon bacillus and *B. proteus* urinary infections. It apparently has little value in eradication of *Streptococcus fecalis* and staphylococcus.

If sulfanilamide does not handle the infection then there are mandelic acid and methenamine to try. I believe that mandelic acid therapy should be saved until after the very acute symptoms have subsided. It is necessary to use large doses of the drug, which are not always very pleasant to take, to reduce the fluid intake, and it is essential to maintain the urinary pH below 5.5. To do this it may be necessary to use in addition to the mandelic acid a urinary acidifier such as ammonium chloride or sodium acid phosphate. Unless these conditions are maintained the results with mandelic acid will be disappointing. Mandelic acid therapy is most effective when used in *B. coli* and *Streptococcus fecalis* infections. It is sometimes useful against *B. aerogenes*. The dose Eley advises is:

Age	Total 24 hour fluid intake	Daily dose ammonium mandelate
Infancy	350 c.c.	3 grams
2- 5 yr.	500 c.c.	5 grams
6- 8 yr.	600 c.c.	6 grams
9-12 yr.	800 c.c.	8-10 grams

Methenamine should also be started after the acute symptoms have subsided. Campbell and Anderson use doses of 10 grains a day for each year of age, not giving more than 80 grains per day to any child. Ammonium chloride in half the dose of methenamine, or sodium acid phosphate in the same dose as the methenamine is used to render the urine acid. The methenamine is given for six or seven days followed by a two or three day rest, followed by more methenamine. If the drug causes gastric or bladder symptoms it should be stopped for a few days and then used in smaller doses.

There is a new preparation of the sulfanilamide group, disulon (sulfanilyl sulfanilamide) with which I have been doing some experimental work. It appears to be much more effective than sulfanilamide. It

causes decidedly fewer toxic reactions and seems to work in about 50 per cent of the cases that have been sulfanilamide resistant. As yet I have had no opportunity to try it in children.

The use of hexylresorcinol, pyridium, serenium and other dyes has been disappointing in my hands.

After the infection has subsided it is very important to search these children for foci of infection paying especial attention to the tonsils, teeth, sinuses and gastrointestinal tract, for unless these foci are eradicated the pyelitis will either not be cured or recurrences will be the rule.

Under such treatment the average patient will show a urine free of pus and culturally negative for bacteria in one to three weeks. If this is not obtained after four weeks of intensive therapy a urologic examination should be done, as it is usually an indication that obstructive pathology exists in the urinary tract, which, if not attended to, will lead to serious, often irreparable kidney damage.

PROGNOSIS

The prognosis in the average acute pyelonephritis is good, except in very young infants. They may run a stormy course but the condition usually clears up unless some obstruction or other pathology of the urinary tract is present.

CHRONIC URINARY INFECTION

The picture of chronic urinary infection is that of a pale, listless underweight child who has no appetite and is easily fatigued. There are frequent intervals of mild low grade fever for a few days, usually associated with frequency and dysuria, and at times enuresis. Often there is a previous history of acute or recurrent attacks of pyelitis. They rarely complain of pain. The urine is usually loaded with pus, though there may be as few as 2 to 5 pus cells per high power field. The organism most often found in the urine is the colon bacillus, very often mixed with staphylococci and streptococci.

In the more long standing cases, in addition to the symptoms of chronic infection, they also show signs of renal failure as evidenced by gastrointestinal disturbances as anorexia, nausea, vomiting, headache, hyperirritability or sluggishness, and later stupor and uremic coma. Some of these cases of chronic pyuria are only discovered when a routine urinalysis is being done.

These patients with chronic urinary tract infection should first be given intensive medical treatment as outlined under acute pyelitis. If they do not show a urine free of pus and culturally free of bacteria in a month, a urologic examination is urgently needed. So also, is it needed for the patient with acute pyelitis who is not well in a month, or with recurring pyelitis, because continued medical treatment, when an obstructive lesion, or a kidney stone, or renal tumor exists, is bound to end in failure. It is here that close cooperation between the pediatrician and urologist is needed. In the eleven cases in Campbell's series of ureterovesical stricture, all had been treated medically for months or years for chronic pyelitis before coming in for examination.

UROLOGIC EXAMINATION

In making a urologic examination of these little individuals as many as necessary of the following procedures are done in the order given: (1) Urinalysis (pus, blood, casts and bacteria); (2) blood chemistry (N.P.N., creatinine, and CO_2); (3) two hour P.S.P. estimation; (4) plain roentgenogram of the urinary tract; (5) cystogram; (6) intravenous pyelogram; (7) cystoscopy; (8) ureteral catheterization, at which time the individual function of each kidney is determined, and usually (9) retrograde pyelography.

The plain roentgenogram will show the size, shape, and position of the kidneys and if any calculi, foreign bodies or bone deformities in the sacrum or spine (spina bifida) are present.

The cystogram will give the outline of the bladder, whether ureteral reflux exists, which if present may make cystoscopy unnecessary, as a pyelogram is thus obtained, and whether the posterior urethra fills, a finding in congenital posterior urethral valves.

The intravenous pyelogram is not as valuable in children as in adults. Under the best of conditions only about 50 per cent of the plates are of diagnostic value and very often before definite conclusions can be drawn, especially if surgery is contemplated, a retrograde pyelogram must be made. By using skiodan, hippuran or any of the intravenous medias, which are non-irritating, bilateral retrograde pyelography can be accomplished without danger to the patient.

Cystoscopy of children is not the dangerous procedure that many would lead you to believe. Since the advent of baby cystoscopes, any age child can be cystoscoped. Campbell, Caulk, Stevens, Anderson and Helmholz have all shown individually in a large series of cases that children stand cystoscopy better than adults. Of course, a general anesthetic is usually necessary in these youngsters.

PATHOLOGY

The pathology found in children with chronic pyuria is varied, as the child's urinary tract is subject to all the diseases of his elders.

Of the anomalies of the urinary tract that are found, those causing urinary obstruction and stasis, the forerunners of infection, are the most important and these consist in congenital ureteral strictures, anomalous blood vessels and bands of adhesions at the uretero-pelvic junction, congenital obstruction of the bladder neck and congenital valves in the posterior urethra. It is claimed that one-third of the cases of hydronephrosis in children are due to such congenital obstructions. Campbell, in 2420 necropsies on infants and children, has shown congenital ureteral strictures in a little over 1 per cent of the cases.

In ureterovesical stricture there may be nothing to indicate a urologic study unless a hydronephrotic kidney is palpated. When infection occurs the clinical picture, of course, is that of chronic infection and later in the disease, renal insufficiency.

The pathology seen in these cases is a stricture at the lower end of the ureter as it enters the bladder or in the intramural portion of the bladder. The ureter above is elongated, tortuous, thickened, scarred, and angulated. The renal tissue is thinned, infiltrated and sclerosed. It is impossible to diagnose this condition without cystoscopic examination, which shows one or both ureteral orifices to be very small. They may not admit a # 4 F catheter, which normally can be easily passed in a newborn infant. When the catheter is withdrawn there is a definite grasping of the catheter by the ureter.

Without relief of the obstruction these children are doomed to die from sepsis or renal failure. The treatment consists in dilatation of the strictures with ureteral catheters. If the strictures continue to recontract too rapidly or will not dilate it is necessary to open the bladder and incise the stricture.

There is a marked decrease in pyuria and infection with an increase in renal function and marked general improvement in the patient following such treatment, but some pus always persists in the urine and a bacteriologic cure is never obtained.

If a stricture or band of adhesions, or anomalous blood vessels, is at the ureteropelvic junction the same back pressure on the kidney exists and unless surgical relief is forthcoming kidney destruction is inevitable.

In congenital bladder neck obstruction, or valves in the posterior urethra, the same picture of dilated ureters and kidneys is present and in addition the ureterovesical valves become stretched and incontinent. In such a case a cystogram will cause filling of the dilated ureters and kidney pelves and the result will be a pyelographic study. In congenital bladder neck obstruction sufficient tissue must be removed surgically from the vesical orifice either by the resectoscope or by opening the bladder, to relieve the obstruction. If urethral valves are present they must be destroyed, cystoscopically by electrocoagulation.

Urinary calculi, or renal tumors may be responsible for the pyuria. They must first be diagnosed and treated appropriately if a cure is to be expected.

Renal tuberculosis is very rare in infants and children. Of course, its presence must be ruled out if suspected. The cystoscopic findings are usually characteristic. The infection in children is usually bilateral and the prognosis is very poor.

SUMMARY

Closer cooperation between the pediatrician and the urologist must exist if these cases are to be found and helped. Certainly continued medicinal treatment in such cases as described with congenital obstructive anomalies of the urinary tract, calculi, or renal tumors would fall far short of what we hope for from modern medicine. A good rule to follow is if pyuria continues after four weeks of intensive medical treatment as outlined, a urologic examination should be done as irreparable kidney damage may be occurring that could be prevented.

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DISCUSSION

Dr. Hugh T. Beacham (New Orleans): Many adolescents are in a poor state of health due to unrecognized or inadequately treated urinary tract infections which were present during childhood. Many of these patients require surgery when they reach the urologist, whereas conservative therapy would have sufficed had they been properly managed within a reasonable period of time after the onset of their initial infections. As Dr. Youman has so emphatically stated, the cooperation of the pediatricians is absolutely essential for the correct management of these urinary tract infections, and it is the plea of all urologists that these little patients be seen before irreparable damage has been done.

Dr. Youman has wisely pointed out that one must not be lulled into a feeling of false security after the acuteness of the condition has subsided in many of these cases, because we know that often there is an anatomic, pathologic of course, background in many of them. For that reason they should be completely investigated by the urologist. Many are the cases in which cystoscopic examination and manipulation prove time and tissue saving. We are rightfully enthusiastic about pediatric cystoscopy—its value and importance cannot be overemphasized.

The essayist has discussed the matter of pharmacologic therapy in a very commendable manner. I agree with him regarding all of his statements. Undoubtedly sulfanilamide is one of our most valuable drugs. The administration of the same should be accompanied by the use of alkalies as these patients are especially susceptible to acidosis; furthermore, we must be very observant regarding side-reactions, some of which may prove distressful. As yet I have seen no cases of yellow atrophy of the liver in children but I have seen one such case in an adult following prolonged sulfanilamide treatment. In this connection, we must keep in mind that neo-prontosil is less toxic than sulfanilamide and I found it to be about as efficacious. As has been stated, sulfanilamide has little value in eradication of *Streptococcus fecalis* and staphylococcus. For the former we can employ rather large doses of urinary acidifiers and insist that the patient be given considerable quantities of liquids. For the latter, we must resort to frequent alternation of the reaction of the urine and must not lose valuable time in searching for some obstructive basis for the infection. Dr. Youman has certainly made correct statements regarding mandelic acid therapy. This drug undoubtedly is of value but the cases in which it can be satisfactorily given are not as numerous as some writers would have us believe. Regarding the acidification of urine it might be stated that if the youngsters can swallow enteric-coated tablets, ammonium chloride may be used. In the liquid form, as we all know, this preparation is very distasteful although many of these little patients take it like soldiers. In regard to sodium acid phosphate it must be remembered that when it is given in sufficient dosage to be beneficial it usually causes such gastrointestinal distress that it cannot be tolerated.

The renal function of these patients must be studied. Any medicinal preparation's efficacy will depend to an important degree upon the activity of the kidneys. I still regard the Fishberg con-

centration test as one of our best methods and I think it should be employed in every case.

With the consent of Dr. Youman, I wish to show roentgenographic slides of three cases.

The first shows markedly dilated ureters with reflux from the bladder due to infection. You will note that the pelves and calices display little evidence of infection in this female patient of 18 months.

Case No. 2 presents a very extensive process. There is dilatation of the bladder, ureters, pelves and calices. This little boy suffered because of congenital valves in the posterior urethra. The destruction of renal tissue with infection was responsible for his demise. Had he been given the benefit of early urologic investigation, the predisposing condition responsible for his death could have been corrected. Slide B shows extremely dilated ureters in a lateral view.

Case No. 3 demonstrates obstruction to the ureters caused by enlargement of retroperitoneal lymph glands due to sarcoma. As is noted the calices are markedly dilated. Secondary infection and retention of nitrogenous products hastened his expiration.

Dr. S. George Wolfe (Shreveport): This subject has been covered so completely by the paper presented that there is little for a pediatrician to add. I can say, however, that it was the urologist who taught us that pyelonephritis is not a simple disease. We should have recognized that years ago, but we did not. It is not properly recognized by all of us yet. Pyelonephritis is not a simple disease and the prognosis is very uncertain, because the treatment is not as simple as one might think, even granting that no anatomic defects are present. Since the advent of sulfanilamide there is a temptation to estimate the amount of pus in the urine, give the drug and rest content that the patient will be well in a day or so, but estimation of pus in the urine is only half of what one should do before proceeding to treat a case of pyelonephritis. One should determine the causative organism, which is relatively simple to do. Nor does one have to resort to cultures, because a simple strain of the urinary sediment in practically every instance reveals the causative organism. In many of these cases it is shown that two or more organisms occur and, as the essayist has pointed out, sulfanilamide has no effect on *Streptococcus fecalis* and most staphylococci. It is in these infections that mandelic acid is of most value. Finally, one should not be content with cure from a standpoint of absence of pus in the urine, but also one should demand sterile urine before one pronounces these patients cured.

Dr. H. W. E. Walther (New Orleans): I think we all realize that many of these children with urinary infections are seriously ill; not infrequently they are undernourished, and for this reason building them up physically is as important as treating the lesion in the urinary tract. They need physiologic rest, and this can be accomplished best by mild sedation through the use of suppositories.

I am sorry that I can not align myself with the enthusiasts over sulfanilamide. Furthermore, I would sound a warning that the sulfanilamides are not always tolerated well by children. Certainly, I would never give 40 grains daily of the drug to any child, as the essayist quotes one clinician as recommending. We always precede sulfanilamide therapy with small injections of bacterial antigens, in order to build up the patient's antibodies. Our experience shows, in about 33 per cent of all urinary infections, that sulfanilamide fails to retard the growth of bacteria.

I agree with Dr. Youman that cystoscopy is easy to perform in children; a short gas anesthetic is employed in most instances. If there occurred more consultations between pediatricians and urologists, fewer of these cases would go unrecognized. Rarely can they be classed as emergency cases; symptomatic treatment should be instituted until they can be referred to a urologist for cystoscopy. The majority of them will ultimately require cystoscopic care.

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THE EFFECT OF GASTRIC DIGESTION ON THE ALLERGIC POWER OF POLLEN*

NARCISSE THIBERGE, M. D.†

NEW ORLEANS

For a long time such progressive allergists as Borne of Indianapolis, Cazort of Little Rock, Bernton of Washington, Vaughan of Richmond, Stroud of St. Louis, Black[1, 2] of Dallas, and a few others have been interested in the oral administration of various preparations of either the plant or the pollen of sensitizing plants. The results, however, have been inconstant, and for the most part oral administration has not been satisfactory. On the other hand, the occasional favorable results reported cannot be attributed entirely to enthusiasm or to optimism. They may not be permanent, yet they seem to justify the conclusion that the allergen reaches the general

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circulation unaltered as to identity and that it confers a measurable amount of resistance upon the allergic subject.

I have been interested in oral administration of allergens for many years, and in 1937, when the Southern Medical Association met in New Orleans, I had the privilege of serving as leader of a round-table discussion on the subject. The general conclusion then was that the oral route of administration would probably never replace the hypodermic route. A rather similar conclusion was reached at a recent meeting of the Chicago Society of Allergy,[3] the members of which insisted that at the present time the oral use of pollen should be considered in the experimental stage. I believe that this conclusion is wise, and that the method should be considered in the earliest experimental stage. Certainly it is not fit for general use by the profession, and still less for lay use.

Fishbein[4] in a recent lucid review of the subject in the Journal of the American Medical Association admitted the effectiveness of the oral administration of poison ivy, but condemned as futile, at least for the present, the oral administration of pollens. The effectiveness of the oral administration of poison ivy may perhaps be due to the fact that its fat soluble antigen remains unaltered by gastric digestion, so that it enters, unchanged, into the defensive cells through the absorbent villi of the intestines.

REPORT OF PATIENTS TESTED BY ARTIFICIALLY DIGESTED POLLEN

As early as 1916, in collaboration with the late Dr. Sheppegrell, I administered ragweed to some 20 patients with hay fever, in the form of paste or tincture or pills. No results were noted except such as are observed whenever a new form of therapy renders the patient optimistic enough to attribute to it such improvement as is actually brought about by natural causes. In 1938 my interest in the subject was revived, and I am reporting herewith a study of 41 patients tested by artificially digested pollen.

As each of the patients applied for treatment to the Allergy Clinic of Charity Hospital of Louisiana at New Orleans he was tested intradermally with each of the following antigens:

1. Plain saline.
2. Grass pollen extract 1:1000.
3. Ragweed pollen extract 1:1000.
4. Ragweed pollen extract 1:1000 artificially digested with pepsin and hydrochloric acid.
5. Ragweed pollen extract 1:1000 artificially digested with pancreatine.
6. Plain gastric secretion 1:1000.
7. Plain intestinal secretion 1:1000.

The predigested ragweed extract duplicated as closely as possible the results of gastric digestion. Another preparation of ragweed extract predigested with intestinal and pancreatic enzymes also duplicated the results of normal processes as closely as possible. Both preparations were made by Dr. George Fasting.

In 29 of the 42 tests (one patient was tested twice) the tests were positive for ragweed. In 23 instances out of these 29 it was found that the intradermal reaction was either reduced or obliterated by gastric digestion but intensified by pancreatic digestion. In four of the six negative cases in this group there was no reaction, and in the remaining two a reversed reaction took place, for which I can offer no suitable explanation.

The results were less spectacular in the 13 tests positive for grass allergy, and they are reported as controls rather than as an attempt to prove any selective action of the digestive juices. In eight of the 13 cases the patients were not allergic to ragweed, and whether or not it was digested could not influence the possible reaction. In the remaining five cases the fact that the reaction was more marked with pepsinized than with plain ragweed is perhaps to be explained by the protein in the pepsin. The results may possibly be due to the hormone itself, but this is unlikely. I have previously conducted a study on hormones in our clinic, and was unable to establish characteristic sensitivity to any of them. I do not believe, therefore, that the reactions I am reporting were influenced to any considerable extent by

either pepsin or pancreatic extract in so far as their protein content is concerned.

PROPOSED STUDY

I propose to study a series of cases in which enteric coated pills of increasing strength will be administered. I have reason to be hopeful that better results will follow this type of administration on the basis of the following observation: The administration of 1/12 grain of ragweed pollen in enteric coating to a patient extremely sensitive to ragweed produced a mild general disturbance with the reappearance of the local reaction at the site of the previous test for ragweed 48 hours after local manifestations had subsided. I also propose in the future to test all allergic patients seen in the spring with an antigen of predigested grass pollen, for control purposes.

SUMMARY AND CONCLUSIONS

1. From the data presently available it may be concluded that artificial gastric digestion causes ragweed pollen to lose some of its antigenic power.

2. There is some justification for hoping that enteric coated pills of ragweed pollen may prove more effective than plain pills.

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DISCUSSION

Dr. Edgar Hull (New Orleans): I regard Dr. Thiberge's work as an important contribution to the subject of allergy for one reason if for no other; he is attempting to simplify the treatment of patients with allergy. In these days in which medical treatment is becoming so complicated, any attempt to simplify therapy is most welcome.

In theory, desensitization to pollens by oral administration, should be capable of accomplishment. We know persons can be sensitized to substances taken by mouth and if sensitization may be accomplished by the oral route, desensitization by the same route should be possible. Desensitization to foods to which persons are allergic is frequently accomplished in the cases of allergy to meat, milk or eggs, by oral administration of amounts of these substances. There have been occasional reports of successful desensitization to pollens by oral administration in the literature within the last twenty years by such men as Black, Touart, Thommen and Gatterdam. Rowe, in his new book on allergy states "this route may be of more value than generally assumed today." Of course in oral administration of pollens with the aim of desensitization, the big enemy will be gastric digestion because we want absorption of allergens unchanged. Since the allergens are presumably proteins, we expect them to be altered by the pepsin of the gastric juice, trypsin of the pancreatic juice and erypsin of the succus entericus.

Dr. Thiberge's work, I think, shows definitely that pepsin will alter the antigenic power of ragweed pollen extract. An interesting observation of his, however, is that artificial intestinal juice did not diminish antigen properties to any significant degree. I think it probable that natural intestinal juice will perhaps alter this pollen more than artificial juice because natural juice would contain enterokinase of the succus entericus which is the principal activator of pancreatic trypsin. It might well be that the prevention of gastric digestion is all that is needed for sufficient amounts of unchanged antigen to be absorbed into the body circulation.

All of us, I am sure, wait with considerable interest, for reports from Dr. Thiberge as to the effectiveness of oral administration of pollen extract in enteric coated pills. If this route and method of administration prove effective it will be a great boon to the physicians and to the patients; more especially to the patients who are the ones who have to suffer continued subcutaneous or intramuscular injections of pollen extract.

Dr. Nicholas K. Edrington (New Orleans): The work of Dr. Thiberge with predigested pollen is indeed very interesting and will no doubt lead to a better preparation of pollen extracts for oral administration. The advantages of oral pollen administration are:

(1) The ease of administration; (2) gives us something definite to do for those patients who do not want a hypodermic injection, especially children; (3) it offers a means of continuing a course of treatment when the patient is away from obser-

vation; (4) in hypersensitive individuals the treatment by mouth can be more tolerated; (5) combined with the hypodermic injections it seems to produce better results and reduce the necessity of too frequent injections.

The results however in desensitization with oral pollen mixtures have been very unsatisfactory. It is true that from time to time and from here and there we get some reports of success, but the concensus of opinion of the allergist is that oral pollen therapy as applied today is a failure. This is no doubt due to the difficulty of adjusting the dose to the individual's needs. One dose due to favorable conditions in the gastrointestinal tract will be fully absorbed, another may not be absorbed at all, yet the schedule calls for a still larger dose the next time, which for all that we know may be four or five times as large as the last shocking dose. The result is that the patient suffers from a constitutional reaction varying from an attack of nausea and vomiting to violent cramps and intensive diarrhea with mucous or blood in the stools.

Oral pollen therapy is not a recognized procedure and has not been accepted by the Council of Pharmacy and Chemistry of the American Medical Association, yet oral pollen is being manufactured by several biologic houses and advertised to the laity.

Dr. Thiberge's work may lead to the proper standardizing of oral pollen therapy which will be a great asset to our present armamentarium in the management of our hay fever patients.

Dr. Narcisse F. Thiberge (In conclusion): A point was raised at the round-table meeting of the Southern Medical Association that the doctors were always working things out against their own interest. In other words, if we simplify the treatment for the patient we cheat ourselves of a good deal of work. However, I think we should go beyond that and lose sight of financial consideration and make it as easy as possible for the patient.

There is one point I want to clear, which was brought out in Dr. Hull's discussion. He compared sensitization of food with pollen. We know that there is a similarity but there is also a difference. Desensitization with food is easier than hyposensitization with pollen because pollen is interferred with by gastric digestion. Some of the cases where the oral pollen has been successful may be due to the inactivity of the gastric juices. I think in cases where we have had benefit it might be that the digestive function may have been deficient and allowed the absorption of the pollen extract in its whole identity without interference of gastric digestion.

Another point that I want to bring out is that the skin reaction is not an expression of immunity. In other words when you obliterate skin reaction you do not necessarily hypersensitize completely because the sensitizing process in the pollen and the immunizing process may be entirely different and one is not the expression of the other. In other words repeated tests on a patient who is improving may remain as active; when we speak of skin reaction we still speak of a mysterious element.

Dr. Edrington brought out a good point about the concentration and exact dosage. The principal statement he made was that, with the pills, there is no interruption in the treatment. That point should be stressed.

In regard to the general reaction from oral administration, I do not think we should worry much about that because it is my impression that the dosage administered orally may be increased to many times the dose given hypodermically without much danger. There is a possibility of discomfort which some may resent very much. As I mentioned, in one case, as little as a twelfth of a grain produced a general reaction; some gastrointestinal disturbance, the reappearance of the reaction in the tested area. By gradual and careful increase of the dose it may be possible to spare the patients even that discomfort.

I wish to say that materials have been furnished me for experimental purposes by the Lafayette Pharmaceutical Company. The company has furnished us about two thousand dollars worth of pills gratis.

IRRADIATION THERAPY IN ENDOCRINE DYSFUNCTION*

J. N. ANÉ, M. D.

AND

LEON J. MENVILLE, M. D.

NEW ORLEANS

With improved apparatus and a better understanding of technical factors, along with increased knowledge of its biologic effect, irradiation therapy is now believed to be a dominant therapeutic measure available to the medical profession. While it is commonly associated with the treatment of cancer, it has proved as effective in the treatment of non-malignant diseases.

In recent years, the medical profession has obtained valuable information concerning the functions and effects of the glands of internal secretion upon the human body, and this knowledge has opened a new field

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for irradiation therapy. While it is true that roentgen therapy has been employed frequently for the relief of endocrine disturbances and in certain instances has proved more effective than the hormones themselves, we must not permit our enthusiasm to cause us to overestimate its value and make unreasonable predictions. We should remember that the success of a physician is based upon his skill and judgment and not upon any particular agency with which he practices medicine.

It has been known for a long time that different tissues and organs react differently to irradiation and, in those conditions believed to be due to endocrine imbalance, it is usually applied to suppress excessive action of the organ or to stimulate a dormant action to one of activity. Its principal use has been in functional disturbances of the thyroid, parathyroid, pituitary, ovary, adrenals, breast disturbances, and bone dyscrasias. It is to be appreciated that if any form of treatment is to be effective and give good results, it must be applied scientifically and its application must be based upon experimental evidence and clinical observations. With this thought in mind, we would like to discuss briefly some such experimental observations and clinical results which have been obtained by certain investigators on the application of irradiation therapy on some of the glands of internal secretion.

PITUITARY GLAND

For over 20 years irradiation therapy has been applied to the pituitary gland for various gynecologic conditions, and recently this form of therapy has been applied to this organ in certain cases of diabetes mellitus and cases of so-called essential hypertension. It is of interest to know whether or not the patients who responded favorably to this form of treatment were the result of psychic effect, or, in reality, of a direct influence of the therapy on the pituitary. In other words, will therapeutic doses of x-ray influence the non-adenomatous pituitary gland? Recently, Lawrence, Nelson, and Wilson,[1] of Yale University School of Medicine, answered this question by certain experimental work in the irradiation of the pituitary gland of female albino rats. They decided from their observations: "It is fair to conclude that although the pituitary glands of young albino rats are relatively radio-resistant, nevertheless, they can be influenced by x-ray therapy. The immediate period of suppression is followed by gradual recovery of the pituitary and consequently of the organs influenced by its hormones." They also stated that no definite clinical implication can be drawn, but their experiments suggest that non-adenomatous human hypophyses can be influenced by therapeutic doses of the roentgen ray.

In regard to the interrelationship between the pituitary gland and the ovaries, Lacassagne,[2] of Paris, conducted certain experiments on female animals by destroying their hypophyses with radium and observing the effects on their ovaries. He found considerable histologic changes in the ovaries; one-third of the anterior lobe suffices to preserve the usual genital activities, even if the remainder of the anterior and the entire middle and posterior lobes are completely destroyed.

Biedl, Aschner,[3] and others showed many years ago that extirpation of the anterior lobe of the pituitary in young animals was followed by atrophy of the ovaries and uterus. Gellar[4] produced the same results by intensive roentgen ray irradiation of the pituitary. The intimate interrelationship between the pituitary and the ovary has now been fully established by the work of Dixon and Marshall[5] and others.

The pituitary gland has been credited by certain authors as fostering functional disturbance in organs remotely situated. For instance, Tierney and Engelbach[6] believe that, both subjectively and objectively, the function of the pituitary gland is dualistic. Thus, disease of the gland may cause amenorrhea, dysmenorrhea, epileptiform attacks, obesity, headache, definite changes in the osseous, genital, and dermal systems, increased blood pressure, fever, and involuntary muscular contractions. These investigators also state that the analogy between

these syndromes and those coincidental with disturbances of the thyroid is evident.

Since it is reported that a diseased pituitary gland may produce epileptiform attacks, it may be interesting to present the report of a case of epilepsy associated with pituitary disturbances responding to x-ray therapy recorded by Bernard Seligman,[7] of Kings County Hospital, Brooklyn. He reports: "A case of hypopituitarism without evidence of hypophyseal tumor in which the pituitary was irradiated and no seizure occurred for two years thereafter." Dr. Seligman believes that the course of this case showed presumptive evidence of amelioration of the "fits" by roentgen therapy, although the signs and symptoms may have been due to a small chromophose adenoma of the pituitary. This treatment would be especially advantageous in cases of epileptic seizures associated with tumors but which did not cause marked local pituitary symptoms.

ADRENALS

The effects and clinical results obtained by irradiation of the pituitary gland have been known for a long time. Similar knowledge concerning the adrenals is now also well understood. Some investigators claim that the adrenals are not easily affected by the roentgen ray. The experimental work of Cottenot,[8] Frey,[9] Pozzi,[10] Stephan,[11] and Strauss would seem to confirm this, but the works of Zimmern and Baude probably offer a correct interpretation of the results of roentgen ray therapy to the adrenals. The latter suggest that just as the normal thyroid is unaffected by irradiation therapy, in a condition of hyperactivity, both the thyroid and adrenals are sensitive. However, they believe it possible that their good clinical results from irradiation of the adrenals in hypertension may be due to an effect on the vegetative nervous system rather than on the adrenals themselves. These investigators are supported in their views by Gouin and Bienvenu[12] and others.

Irradiation of the adrenals for hypertension was used years ago. As far back as 27 years, investigations were made by Zimmern and Cottenot[13] on the effects of irradiation on the adrenals in human subjects. In this study, individuals with abnormally high arterial pressure were selected. In some cases, a single exposure to irradiation sufficed to produce well-marked diminution in pressure, but in most instances a series of treatments over a period of several months was necessary to reduce it to normal.

Two years after Zimmern and Cottenot's observations, or 25 years ago, Eisler and Hirsch killed several rats with very large doses of x-ray. Soon after death the adrenals were extirpated and an extract made in physiologic saline solution. As controls, the same weight of adrenals from normal animals were taken and similarly extracted. These extracts were injected into the jugular veins of rabbits, while the blood pressure was registered in the carotid. In the case of extracts of irradiated glands, the blood pressure rose rapidly but very soon returned to normal; in the case of extracts from normal adrenals, a similar rise in the pressure was observed, but the elevation was maintained for a considerable time. The results were well marked in the case of four irradiated animals. The reported observations of these two investigators would indicate that irradiation therapy to the adrenals does affect blood pressure.

The adrenals have been irradiated in cases of diabetes mellitus for some time and it is of interest to present the work of Desplats, Langeron, and Béra[14] who used roentgen therapy over the adrenals to reduce the blood sugar in patients suffering with this disease. These investigators observed a diminution of sugar in the blood and urine. Assuming that there is sufficient insulin in the blood, the explanation of this phenomenon is given through the dilatation of the arteries. The exposure of the vegetative nervous system to roentgen rays brings a better blood supply into the vessels of the muscles, and, thereby increased muscular combustion of blood sugar is produced. However, that the effect of roentgen rays on the vegetative nerves may be a direct one is evidenced by the fact that Langeron and his co-workers report an increase of urine elimination immediately

after roentgen therapy and before the sugar elimination is diminished.

Desplats[15] accidentally discovered in 1931 that, in the case of diabetes mellitus treated with roentgen ray over the region of the adrenal glands, arterial obliteration of the limbs expressed in the form of intermittent claudication was greatly improved and that the patient walked with greater comfort. Zimmern[16] reports similar results. It would seem from the observations of these physicians that the effect on the arterial system may play a part in these cases of diabetes mellitus in which the adrenals were irradiated. At the present time, numerous reports have been made supporting the idea that the pituitary and the adrenals are responsible for essential hypertension. It is the belief among many physicians that both glands secrete a substance which increases blood pressure and blood sugar and that a hyperfunction of the pituitary is frequently accompanied by hypertension and hyperglycemia, and the application of irradiation therapy to these glands will affect the hypertension and hyperglycemia.

While we personally believe that irradiation therapy has a distinct value in treating certain cases of so-called essential hypertension, we should treat such conditions only in consultation with the endocrinologist and internist. A warning should be sounded to those inexperienced physicians, owners of x-ray apparatus, against the indiscriminate use of irradiation therapy in all types of hypertension. Not only would such a practice occasion a distrusting attitude of the medical profession to this type of therapy, but grave danger to the patient might be the result. When applied judiciously and intelligently by an experienced radiologist, this form of therapy, along with other forms, will prove without doubt of inestimable value in certain cases of hypertension, without producing any danger to the organ treated.

MENOPAUSAL DISTURBANCES TREATED BY ROENTGEN THERAPY OF THE PITUITARY

This form of treatment, first used by Werner[17] in 1923, is now recognized as having great influence on the symptoms of patients during their period of menopause. It appears that as the ovary becomes less active the pituitary becomes more active, and some believe that the symptoms of the menopause are due to over-activity of the pituitary. Acting on this theory, Werner

TABLE I

IRRADIATION THERAPY OF PITUITARY AND ADRENALS FOR HYPERTENSION AND DIABETES MELLITUS

	Cases hyp. and diab.	Improved both cond.	Improved hyp. only	Improved diab. only	Unimproved
Culpepper, Madden, Olson and Hutton, Chicago, Ill., Endocrinology, February, 1938	32	9 or 28%	8 or 25%	3 or 9%	2 or 6%

TABLE II

RESULTS OF IRRADIATION THERAPY IN ESSENTIAL HYPERTENSION

	Cases	Definitely improved
Hutton, J. H. and Madden, E. E., Chicago, Ill., Ill. Med. J., August, 1936	234	123 or 52.6%

RESULTS OF ROENTGEN THERAPY TO THE PITUITARY AND SUPRARENALS FOR ESSENTIAL HYPERTENSION

	Collected cases	Benefited
Boswell, F. P., Montgomery, Ala., Industrial Med., May, 1938	1000	75%

Tables I and II clearly show the beneficial results of irradiation therapy in cases of essential hypertension and diabetes mellitus when applied to the pituitary and adrenal glands.

successfully treated excessive menopausal symptoms by irradiation of the pituitary. As a proof of the harmlessness of the technic used in such treatments, Borak[18] cites that for the past 30 years children have been treated with at least the same amount of irradiation for epilation of the hair of the head for tinea capitus, and no sign of damage to the hypophysis or brain tissue has ever been observed.

Ford,[19] of the Mayo Clinic, reported complete relief in seven out of 17 women with dysmenorrhea treated in this manner.

IRRADIATION THERAPY IN DISEASES OF THE THYROID GLAND

For a long time, surgery was the only acceptable form of treatment in goiter cases, and it is still to be considered of great importance. However, a better understanding of the interrelationship of the thyroid gland to the other glands of internal secretion has explained in a measure why some patients continue to manifest goiter symptoms after surgical operation, since removal of the thyroid alone does not always affect the dysfunction of certain glands of internal secretion which may cause hyperactivity of the thyroid.

In this regard, Fulton, Schnitker, and Cutler,[20] of Boston, in a recent contribution on the subject, state: "It is generally agreed that subtotal thyroidectomy is, at the present time, the most dependable method of treatment for patients with toxic goiter. Yet failure to relieve symptoms by this procedure is by no means rare. It has been pointed out repeatedly that no matter how careful the selection and preoperative care of patients with toxic goiter, no matter

TABLE III

IRRADIATION THERAPY FOR MENSTRUAL DISTURBANCES CAUSED BY PITUITARY AND PRIMARY OVARIAN DEFICIENCIES

	Cases	Pronounced amenorrhea	Oligomenorrhea	Definite metorrhagia
Mozer, C., and Spitz, Mt. Sinai Hosp., Philadelphia Am. J. Obs. & Gyn., August, 1935	102	51	21	13
		45% responded favorably	6, or 28%, conceived soon after treatment, remaining 8 were cured	80% responded to treatment

TABLE IV

IRRADIATION IN CASES OF AMENORRHEA

	Cases	Menst. restored	Conceived	Went to term	Physical deformities in children
Kaplan, I., Director, N. Y. Cancer Inst., N. J. State J. Med., April, 1938	131	79	44	38	0

EFFECT OF IRRADIATION OF PITUITARY IN DYSMENORRHEA

	Cases	Amelioration
Newell, R. R., and Pettit, A. V., Stanford. Radiology, October, 1935	56	35 or 67%

TABLE V

IRRADIATION OF PITUITARY GLAND IN TREATMENT OF MENOPAUSAL SYMPTOMS

	Cases	Responded to treatment
Collins, C., Thomas, E. P., Menville, L. J., New Orleans, Tulane Med. Clin.	109	85%

TREATMENT OF PITUITARY GLAND FOR MENOPAUSAL DISTURBANCES

	Cases	Improved
Borak, J., Vienna, München.med. Wchnschr., 1924	274	80%

The good results obtained in menstrual and menopausal disturbances are shown in tables III, IV, and V respectively.

how skillful their surgeon, or how radical their surgery, no matter how careful their treatment following thyroidectomy, a certain number of patients will either continue to manifest hyperthyroidism, or, after an interval of essentially normal health, will have the condition recur."

The incidence in which this happens varies considerably in different clinics. Thompson, Morris, and Thompson[21] in 1931, published a comprehensive review of the subject in which they revealed that among the different series reported in the literature, the incidence ranges from 0.25 to 25 per cent.

There are experimental and clinical observations to support this belief. Emmanuel Momigliono, of the University of Rome, reports that roentgen therapy over the thyroid of rabbits produced marked changes in their ovaries. He states that while these observations in rabbits following intensive doses of irradiation should not be directly applied to humans, they explain the known clinical fact that ovarian function can be stimulated by roentgen ray treatment of the thyroid. Then again, according to Coret, the disturbances of menstruation, oligomenorrhea, and amenorrhea as found in exophthalmic goiter are explained as direct response to thyroid dysfunction.

And further, R. J. Schachter,[22] of the University of Chicago, states: "Shapiro and Marine[23] reported that the symptoms of hyperthyroidism were alleviated in a patient with Graves' disease, upon the eating of raw desiccated adrenal tissue. From their observations, Marine concluded that decrease in adrenal cortical secretion may be a factor in causing hyperthyroidism."

An interesting report by Crotti is found in Jackson's[24] book, "Goiter and Other Diseases of the Thyroid Gland." Crotti believes that "there undoubtedly exists an interrelation between the thyroid, the pancreas, and the adrenals. The adrenals and thyroid are reciprocally stimulating; the thyroid and pancreas inhibit each other, while the pancreas and the adrenals are antagonistic." Crotti adds that "a close relationship exists between hyperplasia of the thymus and thyroid, and this view has been reported also by Virchow, Gluck, Wiens, Wever, Kaufman, Rossle, Hart, Halsted, and others. After thymectomy in animals, the thymus gland tends to become hyperplastic as in Graves' disease, and, likewise, following thyroidectomy the thyroid becomes hyperplastic." This fact, Crotti thinks "is of great importance since it explains why, after an operation for goiter, it may be necessary to deal with mechanical as well as functional disturbances due to an increased thymic hyperplasia."

Pohle,[25] of the University of Wisconsin, says: "The roentgen therapist finds at least an explanation for the beneficial results of roentgen irradiation of the suprarenal region for toxic parenchymatous thyroid gland. When the direct treatment over the thyroid gland has failed to show improvement in the patient's condition, a beneficial influence is observed by irradiating an existing suprarenal adenoma. Another explanation of the beneficial effects of roentgen irradiation on the suprarenal glands, practiced particularly by the Belgian and French roentgenologists, is advanced in Crile's[26] report of denervation of the adrenal glands for neurocirculatory asthenia." The patient upon whom Crile[27] operated for neurocirculatory asthenia lost all symptoms of hyperthyroidism after the denervation of the adrenal glands. Pohle goes on to say: "Even if one is able to make such a diagnosis, is the surgeon justified in performing denervation of the adrenal glands while the sympathetic nervous plexus and the endocrine glands seem to be in a state of hyperactivity? Roentgen therapy over this region can produce a similar effect on the sympathetic nerves and ganglia and should be tried before such an operation is suggested."

Irradiation therapy has been used in goiter cases with decompensated hearts and has been productive of excellent results. Pellegrini and Guiseppe, of the University of Pavia, state: "In many cases, a state of compensation is obtained and lasts as long as the cardiovascular apparatus is not

TABLE VI

RESULTS OF POSTOPERATIVE RECURRENCES TREATED WITH X-RAYS

	Cases	Cured	Improved	Unimproved
Perry, S. Paul., Chicago, Ill., Radiology, 1935	17	76%	6%	18%

TREATMENT OF HYPERTHYROIDISM BY IRRADIATION OF PITUITARY GLAND

	Cases	Satisfactory results	Cases previous irradiation to thyroid failed	9 of 12 thyroid failures successfully treated over pituitary
Borak, J., Vienna, Radiology, May, 1935	16	62.5%	12	75%

Table VI shows the results obtained in postoperative recurrences when treated by irradiation therapy and cases of goiter cured by only treating the pituitary gland.

subjected to considerable damages. It is indicated and gives good results in all cases in which digitalis treatment is ineffective and contraindicated, as in bradycardia, block, etc. In these cases, roentgen treatment presents an absolute indication and not only gave brilliant results but may change the physiopathologic condition of decompensation to the point of rendering the patient sensitive to the action of the cardiac tonics."

Direct application of irradiation therapy has been used for a number of years in the treatment of goiter cases with good results. It is unnecessary to expatiate at this time upon the beneficial results obtained by this form of therapy, since so much has already been written regarding this subject.

It is interesting to note that the surgical profession is now giving irradiation therapy its proper place in the treatment of goiter. We find that Hugh Poate,[28] a noted goiter surgeon of Sydney, Australia, recently stated: "In some of the very acute goiter cases, I advise deep x-ray treatment to the pituitary, as I rather feel that a big part may be played in these cases by the thyrotrophic hormones of the anterior lobe of the pituitary glands. An interesting example of a man with acromegalia developed an acute thyrotoxicosis and goiter. His basal metabolic rate was plus 64 per cent. He was cured of his intercurrent malady by deep x-ray to the pituitary gland only. Personally, I favor deep x-ray therapy and find it a valuable adjunct to surgery in the treatment of severe or secondary Graves' disease."

The following tables are ample proof of the good results obtained by direct irradiation therapy in goiter when used by experienced radiologists.

TABLE VII

RESULTS OF IRRADIATION THERAPY IN EXOPHTHALMIC GOITER

	Cases	Good results
Jenkinson, E. Hunter, St. Luke's Hosp., Chicago, Surg. Gynec. Obst., March, 1938	400	80%

RESULTS OF IRRADIATION THERAPY IN GOITER

	Cases	Cured	Improved	Unimproved	Recurrences	Previous operation	Postoperative cures
Groover and Christie, Washington, D. C., Radiology, March, 1934	252	80.15%	15.47%	4.38%	1.19%	16 or 6.35%	12 or 75%

TABLE VIII

ROENTGEN THERAPY IN 100 CASES OF EXOPHTHALMIC GOITER

	Cases	In good health more than five years
Gunsett—Seeger, Ritter and Schneider, Strasbourg, J. de radiol. et d'électrol., December, 1935	100	74%

ROENTGEN RAY TREATMENT IN GOITER

	Cases	Cured	Improved	Recurrences
Williams, Alden H., Grand Rapids, Mich. Radiology, March, 1932	200	80.5%	13.5%	4%

SUMMARY

Radiation therapy has proved itself to be valuable in the treatment of certain dysfunction of the glands of internal secretion. This is evidenced by good results obtained in cases of essential hypertension, hyperglycemia, some cases of goiters and menstrual and menopausal disturbances when the pituitary gland, adrenals and ovaries are irradiated.

The good results obtained by this form of therapy are the result of experimental evidence and clinical observation, and, in certain cases, it has proved more effective than the hormones themselves.

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DISCUSSION

Dr. D. A. Huckabay (Shreveport): I want to ask Dr. Menville a question. From a clinical standpoint, what results have you had with irradiation of the pituitary gland in diabetes insipidus?

Dr. Sidney M. Copland (New Orleans): In reference to roentgen irradiation of the thyroid gland in hyperthyroidism, I think it is very important that the surgeon's point of view be expressed. We have

been familiar with roentgen irradiation of the thyroid for many years and yet it is far from accepted, most probably for good reason. We know that persons exposed to x-ray come to surgery and when they do, the technical procedure is more difficult on the patient, for added manipulation by the surgeon in overcoming adhesions causes more absorption of the thyroid toxin by the patient.

Many years ago it was demonstrated that a thyrocardiac patient, even in auricular fibrillation, can be submitted to extensive thyroid surgery. It is possible to need x-ray at times as an aid in cooling off iodine-fast hyperthyroid patients so as to prepare them for surgery. Some two years ago, George Crile, Jr. again brought attention to this fact. However x-ray does not cause a permanent cure for we see too many persons exposed to x-ray undergo a remission only to suffer a recurrence. Hyperthyroidism is a surgical disease.

Dr. Courtland P. Gray, Sr. (Monroe): What I have to say is not quite in line with this paper as it refers particularly to the thyroid and I wish to ask Drs. Ané and Menville what their experience has been in similar cases.

Some twelve years ago the State Society met in Monroe. At that meeting Dr. Mayo was present, so I asked him to see a woman with a toxic thyroid, one of the worst that I have ever seen. She had a very large goiter, filling the entire neck, from her chin to the clavicle; her eyes were bulging.

Thinking that Dr. Mayo might be of some assistance to this woman, I had him see her. He advised operation only and, inasmuch as the people were in moderate circumstance, he offered to do the operation without pay provided she would pay her fare to and from Rochester. A few days after Dr. Mayo left Monroe, it seemed that this woman would die. I mentioned the case to Dr. Moore, who is the roentgenologist at the St. Francis Sanitarium and on his advice I took the patient to the sanitarium and Dr. Moore administered x-ray therapy. That has been about twelve years ago.

Today the woman is apparently normal. There is no tachycardia, no bulging of the eyes and on examination you can scarcely determine any enlargement whatsoever of the thyroid. She has delivered, since that time, two normal babies and is apparently a well woman. I would like to know Dr. Menville's experience with similar cases.

Dr. Stakely F. Hatchette (Lake Charles): It seems we radiologists are again having little differences of opinion on certain points with surgeons. What I am talking about now relates to the thyroid gland. If I remember correctly, and I believe I do, in the past two years I have heard several men, whom I consider outstanding surgeons, make the statement that they felt approximately 80 per cent of the hyperthyroid cases could either be cured or benefited by irradiation therapy. They feel that irradiation should be tried first and that in the approximately 20 per cent of the cases in which it fails, surgery should then be done. There has been ample experimental evidence to prove that irradiation does not cause too much in the way of difficulty for the surgeon. It may cause, perhaps, some fibrosis and may make operation a little more difficult but any surgeon who calls himself a surgeon is willing to accept the increased difficulty in operation if he can offer his patient a better prognosis. The mortality in irradiation therapy is practically nil. I believe the mortality rate in surgery still runs rather high.

Dr. L. J. Menville (In conclusion): In answer to the question regarding my experience in treating diabetes insipidus, I have had no experience in the irradiation therapy of this disease.

The statement made by the doctor who has experienced difficulty in operating goiter cases previously irradiated is not an uncommon criticism of this method of treatment. I am sure that all goiter surgeons of experience at times have found the same difficulty in goiter cases which had never been irradiated. In such instances, the thyroid gland had been subjected to certain inflammatory changes (thyroiditis) which resulted in adhesions. Thyroiditis may be acute, subacute, and chronic. The otolaryngologist in a similar manner finds, at times, the removal of tonsils somewhat difficult due to adhesions from chronic inflammatory changes, yet these patients had not received any irradiation therapy. It should be remembered that in many instances an operation is made easy or difficult depending upon the skill and experience of the operator.

Dr. C. P. Gray, a surgeon, has just told us of a toxic goiter patient with cardiac complications, who was cured by irradiation therapy. His experience is like that of a large number of physicians, who, in selected cases, have witnessed the beneficial results of irradiation therapy in similar cases.

Dr. Hatchette has clearly brought out the usefulness and good results obtained with irradiation therapy in goiter cases, all of which I am in perfect agreement with the doctor.

SULFANILAMIDE AND FEVER THERAPY IN THE TREATMENT OF VENEREAL LYMPHOGRANULOMA*

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NEW ORLEANS

Venereal lymphogranuloma is a disease which is not considered to have a grave

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prognosis, but as stated by Frei,[1] it does extend over a period of several months, sometimes only for a few weeks, and then again it may persist for several years. A fatal termination is rare. All who have observed and treated this venereal disease, known also as lymphogranuloma inguinale, lymphogranuloma venereum, lymphopathia venereum, and other names, must agree that the treatment is tedious, most often covers a considerable period of time, and frequently is very discouraging to the patient as well as to the attending physician. The disease may well be classified as a "catastrophe" illness because of the long period of disability resulting in many instances. The resulting economic loss, therefore, is rather extensive to employee and employer and to the public who shoulder the expense of care for the indigent patients.

THERAPEUTIC METHODS

Up to the present time many methods of therapy have been used in venereal lymphogranuloma. These procedures not only have been numerous, but each has been applied in many ways. On the face of this alone one must conclude that there is no agreement as to what constitutes adequate treatment, and secondly, that ample room for improvement in therapy exists. Since these conditions existed, it naturally followed that newer forms of treatment would be applied to this disease. At the Marine Hospital, we have applied two of these; namely, fever therapy as induced by fever cabinets, and sulfanilamide. This paper will be confined to a discussion of the therapy in venereal lymphogranuloma and no effort will be made to discuss the etiology, symptoms, physical findings, diagnosis, differential diagnosis, pathology, history and the like. Recent papers and textbooks published by Frei,[1] Arnold and Knight,[2] Anderson and Harmos,[3] Wien,[4] Pasternack,[5] Knight,[6] von Haam and Lichtenstein,[7] D'Aunoy and von Haam[8] and others have well described the various phases of venereal lymphogranuloma and repetition is therefore not made here.

FEVER THERAPY

Very few reports appear in the literature relative to fever therapy and sulfanilamide in the treatment of venereal lymphogranuloma. However, some very interesting observations have been reported in the few papers found in literature. Tauber and Squires[9] treated nine patients, using fever therapy as induced by the Kettering hypertherm. The total hours of fever given ranged from three to 23 1/3 hours, the average being 14.44 hours per patient; the average number of treatments was 4.1 and the average hours of each fever session was 3.5. The results were as follows: Six patients improved, one moderately improved, and two slightly improved. Shropshear[10] used sulfanilamide in the treatment of a case complicated by rectal stricture and improvement resulted. Hamilton[11] treated 15 patients, using sulfanilamide, grains 80 for two days, grains 60 for three days and grains 40 for four to eight days. All patients responded with the exception of one and he responded on further use of the drug. Schaffer and Arnold[12] treated 22 patients with venereal lymphogranuloma with sulfanilamide; twelve were treated with sulfanilamide alone and in ten sulfanilamide was given after other measures had failed. The dosage of sulfanilamide was 40 grains daily for three days, 30 grains daily for three days and 20 grains daily for one to two months. The results were as follows: In the first group of 12 patients, three were cured; five improved; two unimproved, and two results unknown. In the second group of ten patients, one was cured; six were improved; one unimproved and two results unknown. Land[13] reports on one patient having a broken down bubo to whom sulfanilamide was given for two weeks. In addition, the necrotic tissue was excised and packs of glycerine and magnesium sulphate were used daily. Recovery occurred in 32 days. Peryassu[14] found that sulfanilamide therapy induced recovery but he does not specify the number of patients treated. The entire treatment consisted of six tablets daily (amount in grains not stated but probably 30 grains daily) until 180

tablets had been given. Two or three courses of the drug were given with 15 days of rest between courses. He stated that sulfanilamide alone is indicated early in the development of venereal lymphogranuloma and before the appearance of the fistula. Adjunct treatments for the later cases consisted of roentgen rays and intravenous iodide or antimony preparations.

Early in 1938 we had applied fever therapy with good results to four patients having venereal lymphogranuloma. At that time we learned that Captain Hamilton, under the direction of Colonel Qualls[15] at Fort Benning, Georgia, was using sulfanilamide with success in this disease. We promptly began to use this drug routinely on all new cases of venereal lymphogranuloma coming to this hospital, and because of the apparently good results we have continued its use up to the present time. Fever therapy was reserved for those patients who did not respond to sulfanilamide, or for those who did not tolerate the drug.

DETAILED TECHNIC OF TREATMENT

Before proceeding to the results of treatment, an outline of our therapeutic procedures in venereal lymphogranuloma will be given. The outline is as follows:

1. Bed rest in all cases.

2. Sulfanilamide—grains 20 four times daily for two days; grains 15 four times daily for three days; grains 10 four times daily for eight days.

If the condition has subsided by this time 5 grains of sulfanilamide are given four times daily for ten days to lessen the possibility of recurrence. However, if the condition has not subsided by the end of the thirteenth day of sulfanilamide therapy, a five day rest period is given and the course repeated, followed by the 20 grain dosage daily for ten days if apparent recovery has resulted. Fever therapy is given to patients who have not responded to two courses of sulfanilamide or to those who react unfavorably to the drug.

3. Sodium bicarbonate, grains 30 three times daily, is given during the period of sulfanilamide therapy.

4. Fluids are limited to 1200 c. c. daily.

5. If areas of fluctuation are present before therapy is begun, or develop during treatment, aspiration with needle and syringe should be performed. Incisions are to be avoided if at all possible.

6. Fever therapy: We have used an air-conditioned cabinet to induce fever. These fever sessions are given at intervals of two to three days, with fever at levels of 105-106° F. for five hours. A few sessions have been given at 106-107° F. for five hours, but it is believed that fever at 105-106° F. is sufficiently high to obtain the desired results. The treatments should be given at the stated intervals until the disease has apparently subsided. However, it is our opinion that if adequate improvement has not been obtained after ten fever sessions, fever therapy should be discontinued.

7. Excision of glands should be performed on patients not responding to sulfanilamide or fever therapy. Since we have been using sulfanilamide and fever therapy it has been unnecessary to resort to this procedure because of the failure of these two newer forms of therapy.

RESPONSE TO THERAPY

In October, 1938, we[16] reported good results in 16 patients with venereal lymphogranuloma who had received fever therapy or sulfanilamide. Our series now has increased to 36 cases. The duration of the glandular involvement before treatment was begun ranged from six days to 139 days, the average duration being 35.6 days. In 32 cases the duration was less than two months and in only four was the duration more than two months. Thus it is noted that we are dealing here with the more acute type of the condition. The men presented for treatment varied from those with mild inguinal gland involvement to the more severe types with marked pain and swelling of inguinal glands with discoloration of overlying skin and draining sinuses. Spontaneous rupture of the involved areas had occurred in seven cases; in three, a small incision had been made before reporting to this hospital, and in two a small incision was made into the fluctuating area after

admission to the hospital. In three cases aspiration of the fluctuating area was performed before, or during sulfanilamide or fever therapy. Seven patients presented bilateral involvement of the inguinal glands.

In this group of 36 cases four patients received fever therapy alone, 29 sulfanilamide alone, and three a combination of sulfanilamide and fever therapy. As a rule, response was prompt with progressive decrease in pain and swelling of the involved glands, and closure of the draining areas.

It is difficult to include one case of venereal lymphogranuloma in any one specific group because of the various forms of therapy used and because of the difficulty in obtaining cooperation from the patient. This patient developed right inguinal glandular involvement in November, 1937, and during the latter part of the same month excision of these glands was performed at another hospital. Following discharge from the hospital he again developed rather extensive involvement on the same side with draining sinus. At this time he reported to us for treatment, and we decided to give him fever therapy. Between March 19, 1938 and April 11, 1938, he received seven fever sessions at 105-106° F. for five hours. The glands had subsided to about four-fifths of the size present on admission and the draining sinus had closed. The patient decided that he was well enough to go to work despite the fact that we had advised him to continue treatment. He worked for 18 days and then decided that he was in error, and returned for further treatment. On this occasion sulfanilamide was used and gradual decrease in the size of the glands was noted. However, after 13 days of treatment a slight enlargement of the glands remained. A five day rest period was prescribed, followed by another course of sulfanilamide. After 12 days of the second course, the glands had returned to normal. He was discharged, fit for duty, on June 6, 1938. The patient has been seen as late as June 1, 1939, and has had no recurrence of the condition. Throughout the course of sulfanilamide therapy, and between fever sessions it was impossible to keep the patient at bed rest.

Excluding this one case, therefore, the results in the remaining 35 cases were as follows: Thirty-four attained apparent recovery in an average of 17.4 days and were discharged as fit for duty at the end of that time. One patient was markedly improved but still had slight painless swelling of the inguinal glands after 27 days. This patient received sulfanilamide for nine days, following which he developed a generalized maculo-papular dermatitis. The dermatitis disappeared in a few days. Sulfanilamide was begun again 16 days following the onset of the reaction and after one dose of 20 grains the dermatitis recurred. Fever therapy was then attempted but the patient refused to continue the treatment after being in the cabinet for not more than one hour. The highest fever reached was 104° F. Despite the complications of treatment he had shown marked improvement but we have been unable to see this patient since discharge and we do not know his final results. In one of the sulfanilamide group the patient left the hospital before his course of treatment was completed. He was markedly improved but still had some glandular enlargement. After a period of about three months he returned and received adequate sulfanilamide therapy with prompt relief of all signs of the disease. Only three patients were hospitalized for a period longer than 30 days, one for 32 days, one for 33 days and one for 40 days. For the entire group of 35 cases the average hospitalization was 17.6 days. In four patients receiving fever therapy, the average hospitalization was 21.2 days. In the two patients who had fever therapy and sulfanilamide, the average hospitalization was 29.5 days. Fever therapy was used in the latter two patients because of reactions to sulfanilamide. The average hospitalization for the 29 patients receiving sulfanilamide alone was 16.3 days. For the entire group of seven patients who received fever therapy an average of five fever sessions was necessary, or a total of 25 hours of fever at a level of 105-106° F. We have been rather fortunate in the follow-up on our cases and up to the present no recurrences have occurred.

COMPARISON WITH OTHER FORMS OF THERAPY

In order that we can best evaluate the results herein it is necessary to compare the results of sulfanilamide and fever therapy with other forms of therapy used in this hospital. We have reviewed 59 consecutive patients treated here just prior to the beginning of the use of sulfanilamide and fever therapy for comparison of duration of the disease before and after treatment was begun. Excision of glands was done in 45 patients. The average duration of glandular involvement before operation was 39.1 days in this group as compared to 35.6 days before treatment was begun in the fever and sulfanilamide group. The average duration of the condition after operation until the operative wound was healed or until the wound was sufficiently healed to permit discharge from the hospital and return to duty was 43.2 days, as compared to 17.6 days' duration of the condition after treatment was begun in the 35 patients receiving fever therapy and sulfanilamide. In addition, in the group having excision of glands done, three later developed swelling of the lower extremity. One patient, however, was not seen here until after the swelling had subsided. This latter patient developed the condition on the way to Europe and was treated for a few weeks in Antwerp, Belgium. The exact cause, therefore, was not determined, although there is a likelihood that, after he had resumed work as a merchant seaman, swelling of the lower extremity developed, and this was probably a complication following excision of glands. The period of disability in these three patients was not included in our averages of duration of condition after operation.

In 14 patients receiving other types of therapy, such as local heat, incision and drainage, wet compresses, tartar emetic, pressure bandages, bed rest, and the like, the average duration of the glandular involvement was 19.8 days before treatment was begun. The average duration of the disease after treatment began was 39.6 days. This group of 14 cases was generally of the milder type of venereal lymphogranuloma. It is likely that if excision of glands had been performed on all of the milder cases on admission that the average hospitalization may have been slightly less than the 43.2 days reported for the group in which excision was performed.

All patients with venereal lymphogranuloma reported herein were males. This includes not only the 36 cases in the sulfanilamide and fever group but also the 59 patients who received other forms of therapy.

AVERAGE DURATION OF VENEREAL LYMPHOGRANULOMA BEFORE AND AFTER TREATMENT WAS BEGUN[1]

Type of therapy	Number of cases	Duration before treatment began	Duration after treatment began
Fever therapy or sulfanilamide	36	35.6	17.6 days (in 35 cases)[2, 3]
Conservative treatment	14	19.8 days	39.6 days
Excision of glands	45	39.1 days	43.2 days

[1]The average duration after treatment began indicates the time in which condition had subsided and patient was discharged as fit for duty; in the operative cases the time in which the wound had healed or was healed sufficiently to permit discharge from the hospital as fit for duty.

[2]One case is not included because of lack of cooperation in treatment. Refer to case report. Final results were excellent in this case.

[3]Includes one case with marked improvement.

SUMMARY

1. Fever therapy and sulfanilamide apparently were effective therapeutic agents in 36 cases of venereal lymphogranuloma having an average duration of 35.6 days before treatment was started.

2. The period of disability was much shorter in patients treated with therapeutic fever and sulfanilamide than it was for other types of therapy used at this hospital.

3. Sulfanilamide is preferred to fever therapy because of greater ease of administration and because of the low cost of the former as compared to the rather high cost of the latter.

4. No recurrences have occurred thus far in any of the patients considered as having had adequate sulfanilamide or fever therapy.

5. Approximately 75 per cent of patients with venereal lymphogranuloma in this hospital during 1936 and 1937 had surgical excision of glands. Excision was unnecessary in 36 consecutive patients reporting to us

for treatment under the two newer forms of therapy.

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Frei tests on all of the patients reported herein were done by Passed Assistant Surgeon J. G. Pasternack.

ARTIFICIAL PNEUMOTHORAX*

THE TREATMENT OF AMBULATORY PATIENTS WITH PULMONARY TUBERCULOSIS*

SYDNEY JACOBS, M. D.†

NEW ORLEANS

Myers has declared that in treating pulmonary tuberculosis, there are three objectives: To stop the disease from spreading, to restore the patient to working condition, and to render him non-infectious to others. The more closely these objectives are reached, the more successful is treatment.

COLLAPSE THERAPY

To reach these objectives, the program of treatment must be effective. Unquestionably, collapse therapy plays an important role in such a program, having aided many patients in their struggle for health. Many have recovered without it, but only where conditions are most favorable. Without the constant attention of medical personnel trained in the vagaries of tuberculosis, patients usually mistake temporary improvement for definite recovery and resume former activities without warrant. This is the most common cause for relapse. Even in an environment favorable for healing of pulmonary lesions, there are cavities which cannot close spontaneously. In such instances, the mechanical assistance of collapse therapy has meant the difference between speedy functional recovery and prolonged disability. Certainly for the majority of patients, collapse therapy is indicated sometime in the course of the disease.

Artificial pneumothorax is by far the most popular form of collapse therapy. In suitable cases, its judicious application is followed by spectacular improvement and its unfavorable side effects are few. Unfortunately, the majority of patients are first seen when adhesions prevent the underlying lung from being collapsed ade-

*Read before the sixtieth annual meeting of the Louisiana State Medical Society, Alexandria, April 25, 1939.

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quately by this method. For this reason, it can be used successfully in only about one-third of all patients, but it still represents the greatest single advance in tuberculosis therapeutics of the past half century.

Although increasingly popular, artificial pneumothorax is still used too infrequently. It may be that its benefits have not been fully appreciated or perhaps, practitioners in general have been deterred by fear that it might harm patients. Because it is seldom started except in institutions for the tuberculous, chances are missed of reducing the tuberculosis mortality significantly; so long as practitioners do not use artificial pneumothorax, just that long will patients be treated "conservatively" at home. "Conservative" treatment is unfortunately based on the wishful thinking that lesions will resolve and cavities close of their own accord, but this seldom occurs in the absence of mechanical compressive assistance. At times, patients are treated at home in the hope of having them admitted to an institution whenever facilities permit. Regardless of the cause, the fact remains that about 80 per cent of all patients admitted to institutions for the tuberculous have advanced disease. This is just another way of stating that they have lost their best chances for successful pneumothorax therapy with early return to useful existence.

It is therefore not difficult to understand why many experienced physicians consider every patient with tuberculosis a potential candidate for collapse therapy. They except only those with hopelessly advanced disease and those with early fresh lesions offering promise of spontaneous resolution. It is not at all improbable that we shall accept this viewpoint of collapsing lungs except where futile or needless.

Now, there is no question that the sanatorium gives much to the patient. It offers him an excellent education and maintains that discipline and routine conducive to recovery from tuberculosis. To a lesser degree, this can be accomplished at home, but only if an excellent form of supervision can be maintained. In most instances, this is not possible. Many patients treated at home by "bed rest" simply will not give the type of cooperation essential for recovery. Since symptoms abate before lesions resolve or fibrose, patients and doctors may be lulled into a false sense of security, and many a patient is permitted to return to work too early, sooner or later to have relapse and exacerbation of the disease.

Granted that cooperation is essential, it follows that artificial pneumothorax is of value, not only because it mechanically compresses lesions, but also because it makes patients amenable to discipline. Many patients will not cooperate long enough to obtain healing unless required to report regularly to a physician for "refills." Many of the ill-effects of chronic pulmonary tuberculosis can be avoided once the "patient-control" of artificial pneumothorax is begun. Where cavities will not close unless mechanically compressed, a patient is safer with a collapsed lung amid a poor environment than with an expanded, cavity-bearing viscus.

The use of artificial pneumothorax ought to be more widely encouraged, even among those without access to the larger institutions. We need not debate the relative merits of sanatorium and dispensary care here. Pulmonary tuberculosis is a disease of protean manifestation, affecting people of varying temperament; its treatment should be highly individualized, and the practitioner must decide where his patient is to be treated. If we accept the three objectives as goals to be attained, we realize that the really important thing is to decide under which plan the patient stands the best chance of having his disease arrested, of becoming non-infectious, and of leading a useful life once again.

For most patients, such a choice is purely academic. They cannot afford the prolonged and costly treatment of private sanatoria and must enter public institutions if they are to be given hospital care. Because so few of them can obtain beds in such institutions, the great majority are treated at home with or without capable medical supervision. In 1937, 1410 people died from pulmonary tuberculosis in Louisiana. Our

total bed capacity for the tuberculous is exactly 770; therefore, we have enough beds to accommodate only one-half of those who died of the disease, making no allowance for the many thousands more who are in need of treatment. It is perfectly obvious that something else must be done. Granted that provision of more beds is essential, years would elapse before the required number of beds is provided even if actual construction of additional facilities were begun tomorrow, and we are far from this point yet. Before the proper number of beds is furnished, hundreds of people with disease originally minimal will progress to a fatal termination while waiting for a chance to enter a hospital.

Something else must be done. A positive step would consist in establishing "collapse clinics" where patients receive artificial pneumothorax without prolonged hospital stay. The idea is not new. First employed about 40 years ago in Chicago by Frederick Tice and John B. Murphy, it still functions successfully there. Myers, in Minneapolis, and Morales and Pastor, of Puerto Rico, have recently announced their results in similar programs. Myers reports a series of 375 patients treated in his clinic; 239 of them had strictly unilateral disease, and in no one of them did the disease process spread to the uninvolved lung while treatment was in progress. About one-half of them were given a preliminary period of bed rest for three months, but the results were no better than among those for whom the entire procedure was conducted on an ambulatory basis. Morales and Pastor state that their program, begun in 1935, had, after three years, been applied to 3,824 patients of whom about 33 per cent were successfully treated.

In comparison with the foregoing, the series to be reported is exceedingly small because it represents studies on only 45 patients followed over periods varying from four months to two and a half years. It is the first attempt to employ such a plan in this state and is herein reported in the hope that it may stimulate practitioners elsewhere to use similar programs in their own communities. Devised specifically for clinic patients, its principles are applicable to private practice. Any practitioner with sufficient knowledge of the limitations of this plan and the facilities required may use it as successfully in his office, as in the clinic.

CLASSIFICATION OF PATIENTS

The patients were classified according to the standards of the National Tuberculosis Association (table I). It will be noted that there were more advanced cases among negroes than among the white patients; this is to be expected. Treatment is considered successful only when patients have retrogression of their lesions, have been restored to working condition, and their sputum contains no acid-fast bacilli. In Table II, it will be seen that 42 per cent of our patients fulfilled such criteria. Because the series is too small for statistical treatment, no further analysis is made according to the stage. These data are summarized in Table III. Perhaps it is well to attract attention to the fact that the nine minimal cases among the improved group had progressive disease even with benefit of complete bed rest.

TABLE I

		Improved	Unimproved	Worse	Dead
Minimal					
White 6	6	0	0	0	
Negro 4	2	1	0	1	
Total ..10	8	1	0	1	
Moderately Advanced					
White 6	5	1	0	0	
Negro 6	2	0	2	2	
Total ..12	7	1	2	2	
Far Advanced					
White 5	0	1	2	2	
Negro 18	5	2	5	6	
Total ..23	5	3	7	8	

TABLE II

SUMMARY

Total patients treated	45	
White	17	
Negro	28	
Successful Results	19	(42%)
White	9	
Negro	10	
Unsuccessful Results	18	(40%)
White	5	
Negro	13	
Data Incomplete	8	(18%)
White	3	
Negro	5	

TABLE III
SUCCESSFUL CASES

Case	Sputum Before	Sputum After	Involvement	Collapse Effective	Collapse Working
O. O.	+	—	F. A.-Un.-Cav.	Yes	Yes
H. W.	—	—	Minimal-Un.	Yes	Yes
A. R.	+	—	M. A.-Bil.-Cav.	Yes	Yes
J. L.	+	—	M. A.-Un.-Cav.	Yes	Yes
G. E.	+	—	M. A.-Un.-Cav.	Yes	Yes
R. C.	+	—	M. A.-Un.-Fib.	Yes	Yes
V. A.	—	—	Minimal-Contact	Yes	Yes
O. L.	—	—	Minimal-Contact	Yes	Yes
A. L. C.	—	—	Chronic Minimal	Yes	Yes
M. W.	+	—	M. A.-Un.-Cav.	Yes	Yes
L. M.	+	—	M. A.-Un.-Cav.	Yes	Yes
E. S.	+	—	M. A.-Bil.-Cav.	Yes	Yes
L. B.	+	—	F. A.-Un.-Cav.	Yes	Yes
V. B.	+	—	F. A.-Bil.-Cav.	Yes	Yes
M. B. H.	+	—	M. A.-Un.-Cav.	Yes	Yes
H. I.	+	—	M. A.-Un.-Cav.	No	Yes
H. J.	+	—	Minimal-Un.-Fib.	Yes—preg.	Yes
V. M.	+	—	F. A.-Bil.-Cav.	Yes	Yes
T. J.	+	—	F. A.-Un.-Cav.	Yes	Yes

Legend: M. A.=moderately advanced; F. A.=far advanced; Cav.=cavity; Un.=unilateral; Bil.=bilateral; Fib.=fibrotic; Preg.=pregnancy successfully conducted while pneumothorax in progress.

Since it has been customary to defer pneumothorax for patients with early or minimal disease, some may question the necessity for inducing artificial pneumothorax on such patients. It is generally believed that they will recover without compressive therapy, but Turner and Collins, working with a similar group of patients, have shown the value of inducing pneumothorax before adhesions make this impossible. Myers has commented on the harmfulness of the policy of "watchful waiting" because often this is tantamount to procrastination while the disease progresses. That minimal disease may progress rapidly if collapse is not induced is well illustrated by an experience in our negro service.

CASE REPORTS

H. J. and M. J. were two 21 year old negro girls whose diagnoses were made during the course of a routine survey upon apparently healthy individuals. At that time, their lesions were minimal and not greatly different in location, appearance or extent. Both had acid-fast bacilli in the sputum. In the former, artificial pneumothorax was successfully induced and maintained for a period of one year, during which time she was delivered of a normal child. Subsequently, spontaneous re-expansion of the lung occurred, terminating pneumothorax therapy. She has been examined repeatedly over a period of about one year and her disease has not bcome active despite the fact that she has been engaging in full work at home. Her child has thus far escaped infection which is indirect testimony to the recovery of the mother. The second patient was not suitable for artificial pneumothorax; several attempts were made but adhesions permitted the creation of only a small, ineffectual pocket. She was advised that more drastic measures were needed but rejected the idea of hospitalization. She did not take strict bed rest at home because she felt well and could not appreciate the necessity for restricting her activities. When symptoms began, she reported irregularly to the clinic; soon a marked spread of the lesions in both lungs was noted. At this time, it was not possible to provide hospital facilities for her, and 16 months after the diagnosis was made, she died of far advanced bilateral pulmonary tuberculosis.

DISCUSSION

This comparison, I believe, emphasizes the necessity for immediate and vigorous treatment of all lesions when first seen, even if only minimal. Perhaps a resolving minimal lesion may be treated simply with rest in bed, but certainly a progressing one needs something more efficacious than this. Our policy has been to obey the admonition of Head that "tuberculosis seldom seems as serious as it is" and to terminate the period of watchful waiting as soon as lesions become larger than when first seen. In view of the above, it hardly seems "radical" to collapse a lung for a minimal lesion. It is far better to control the process by pneumothorax than to take a chance on having it progress beyond all hopes of assistance.

In Table IV, the fatal cases are tabulated. It will be noted that death occurred after relatively short periods of treatment. These were most unfavorable cases for this sort of program, the sort usually admitted to the segregating wings of sanatoria when facilities permit. In the absence of such facili-

TABLE IV
DEATHS

P. G.	Bilateral; pneumothorax three months; admitted to hospital subsequently; tried without success to obtain hospitalization before pneumothorax was begun.
C. J.	Bilateral; on hospital waiting list; pneumothorax one month before death.
M. J.	Rapidly progressive minimal lesion; adhesions prevented pneumothorax; refused hospitalization when available; uncooperative.
C. L.	Bilateral spread unchecked by bilateral pneumothorax for six months.

A. N. Bilateral spread unchecked by bilateral pneumothorax for six months.

L. N. Onset with renal tuberculosis; pulmonary lesion first detected after nephrectomy; uncooperative; pneumothorax for three months.

H. W. Unilateral; excellent collapse; negative sputum; syphilis and hepatitis; was death caused by tuberculosis?

E. J. Bilateral far advanced; laryngeal involvement; sudden progression after four months of pneumothorax.

R. H. Acute pneumonic onset; hospitalized after two weeks pneumothorax.

ties, it was decided to try pneumothorax in the hope that it would at least partially check the dissemination of tubercle bacilli and would encourage patients to follow the hygienic routine prescribed for them. We tried to make the best of a bad situation among negroes because their hospital facilities are so woefully inadequate. If seen earlier, perhaps some of these patients may have been saved. It is significant that of those who succumbed, only one patient had a technically satisfactory pneumothorax, and there is considerable doubt that he died of tuberculosis. Since he had complete closure of cavities and negative sputum, there is good reason to believe that death was caused more by his syphilis and hepatitis, for both of which he was treated before tuberculosis was diagnosed.

TABLE V
UNIMPROVED OR STATIONARY

Case	Pneumothorax (months)	Remarks
M. G.	2	Adhesions prevent adequate collapse; lesions slowly retrogressing.
G. C.	4	Chronic fibroid phthisis; pneumothorax ineffective.
J. C.	10	Large "stiff-walled" cavity not closed by pneumothorax; manic-depressive psychosis.
E. L.	7	Schoolgirl, routine survey; rapid bronchiogenic spread; bilateral pneumothorax being tried.
P. M.	3	"Desperate" case; awaiting hospitalization.
B. S.	2	"Desperate" case; awaiting hospitalization.
H. T.	8	Cavity almost closed; to have pneumolysis.
C. F.	8	Cavity not closed yet but will probably be closed if internal pneumolysis can be effected.

In the unimproved or stationary group (table V) are found some desperate cases for whom pneumothorax is the only alternative to almost certain death from unattended progression of the disease. Two patients here have cavities suspended by cord-like adhesions, and probably adhesion severing will make their collapses sufficiently effective to place them in the successful group. The rapid spread of tuberculosis in the adolescent negress is well shown by E. L. whose diagnosis was made in a public school routine testing campaign. She did not report to the clinic for several months; when she did appear, the disease had spread considerably. Bilateral pneumothorax is now being tried, but the results are not encouraging.

TABLE VI
UNSUCCESSFUL RESULTS

White		5
	Dead	2
	Deserted	2
	Needs Pneumolysis	1
Negro		13
	Dead	7
	Worse	5
	Deserted	0
	Needs Pneumolysis	1
Total		18

Many objections have been raised to the maintenance of such a clinic. The fear that it keeps patients from a sanatorium is not valid; even if we should wish to admit all of them to sanatoria (and this is not granted), where shall we send them? The chief virtue of this clinic is that it permits separation of those suitable for dispensary service from those needing more elaborate attention in a sanatorium. Another fear is that complications will mar the program. There is no reason to believe that the unpredictable accidents (such as air embolism or spontaneous pneumothorax) will occur more frequently in the clinic than in the hospital. As a matter of fact, Myers has never encountered this in his clinic; Morales and Pastor induced pneumothorax 128,000 times with only 33 air embolic phenomena, five fatal. In our series of approximately

1500 inductions, air embolism, pleural shock, or spontaneous pneumothorax has never been recognized. The fear that pleural empyema will be frequent is not borne out by the Puerto Rico figures that of the minimal cases 0.5 per cent, the moderately advanced 3 per cent, and of the far advanced 8 per cent had empyema. Myers' figures are a bit higher; 2 per cent of minimal, 5 per cent moderately advanced, and 14 per cent far advanced developed empyema. In our series of 45 cases, fluid was detected only six times; in two of these patients empyema developed; both were treated by aspiration of fluid with air replacement and in neither instance was collapse impeded.

The economy of this plan is appealing. In Puerto Rico, Morales and Pastor estimate that it costs $323 a year to keep a patient in a sanatorium. By contrast, they charged the entire cost of their field program against the third of their patients successfully treated, and yet, the per capita annual cost was $84. It has been computed that it costs about $800 annually to treat a patient in a public hospital in Louisiana, whereas, the annual cost of treating a patient in one of our clinics averages approximately $50. This last feature is by no means intended to be the predominant factor; no amount of money is too great to spend in saving life. Yet, if there are limited funds with which to provide facilities for the tuberculous, obviously a plan is preferred permitting this amount of money to do the greatest amount of good for the largest possible group of patients.

SUMMARY

If patients with early or moderately advanced pulmonary tuberculosis are treated by artificial pneumothorax in the clinic or the home as soon as the diagnosis is made, many of them will be spared the necessity for prolonged incapacity and hospital care. The earlier induced, the more hopeful the prospects for successful collapse. Those successfully treated will have their lesions arrested, will be able to resume work and will not be dangerous to others. Those who cannot be successfully managed by this plan should be given the benefits of modern sanatorium care. In the literature, there are enough reports to indicate that such a plan is safe and feasible, and experience with a small number of patients in this series demonstrates that it can be properly maintained in Louisiana.

DISCUSSION

Dr. Julius L. Wilson (New Orleans): I think Dr. Jacobs is to be congratulated upon being a pioneer in Louisiana in this work and for demonstrating in New Orleans what can be done, by going ahead and setting up a dispensary to collapse lungs. I was told in New Orleans that there was not much use in instituting a case-finding program because there were not enough beds, and that there was no use finding early cases of tuberculosis, if there was no place to put them. This paper shows one solution to that problem.

In regard to the type of case suitable for such a program, it should be the early case, minimal or moderately advanced. It should be the early case in point of time, picked up as soon as symptoms manifest themselves. The presence or absence of cavity, which others class as late or early, is not as important as the time element. A majority of our patients go into the far advanced stage very rapidly. Only 16 per cent are now admitted to sanatoria in the minimal stage. We have to find and treat at once all suitable cases as soon as possible after symptoms appear.

This sort of clinic is also useful in treating cases not only from the start, but also as they are discharged from the sanatorium. Such a clinic could handle both types of cases and thereby shorten the stay in the sanatorium. We have all had the experience of putting patients with minimal tuberculosis to bed, expecting them to recover promptly. For a while they improve, but after three to six months in bed, it is found that collapse of the lung is necessary. If a person's lung can be collapsed successfully and he can be kept on his feet, avoiding a long stay in bed, it is a great advantage to him.

It is a mistake to think because the patient has a minimal lesion that the duration of treatment will be short, that the patient can be kept in bed for a few months, or collapsed for six to nine months, and get permanent results. Because the lesion is small is no guarantee that it will heal up more quickly than a more extensive lesion.

It is clear from Dr. Jacobs' paper that the expense of treating a patient in this way is very much lower, one-sixteenth or one-twentieth that of hospitalization. A dispensary and hospital plan for the city and for the state should be carefully integrated. I know of one state which spent millions on buildings and hospital beds. They had had a waiting list of 500 and they added 600 beds;

and inside of a year they again had a waiting list; and inside of two years the waiting list was as long as before. They had no system of dispensaries in the state to give pneumothorax; they kept the patients two to five years to give them pneumothorax. I hope when we get a definite plan in Louisiana, whenever the whole state is covered, there will be an integrated program, with not only sufficient hospital beds, but sufficient clinic facilities to take the load off the hospitals and reduce the necessity for beds to a reasonable dimension. Costs of $2000 to $6000 per bed in modern buildings of fire-proof construction are entailed; but we should be slow in making that investment for every patient in the state when we can limit it by well-equipped clinics.

What such clinics need is, first, trained physicians, nurses and personnel. Next, they need a certain minimal number of beds for emergency cases, x-ray equipment, especially a fluoroscope, and laboratory facilities for sputum examination. Dr. Jacobs has demonstrated that one properly trained physician with the facilities of a good general hospital can undertake to operate a collapse therapy clinic for tuberculosis with excellent results at little cost.

Dr. A. J. Hockett (New Orleans): I think it is to be regretted that this paper has not been heard by every general practitioner at this meeting. I wonder how many of you recognize the challenge that this paper holds out to organized medicine, and especially to the men who do general practice. Tuberculosis, as everyone knows who is doing general practice, constitutes an economic disaster which has thrown the disease into socialized medicine almost at the request of organized medicine. Here is a solution to put tuberculosis back into the hands of the family physician, and when I say family physician, I mean just that. As Dr. Jacobs pointed out, the large majority of patients are back at work in a short time, sputum negative and no longer a public health menace.

Pneumothorax can be learned, so far as the technical procedure is concerned, in less than a week, and can be had with consultation at any number of centers throughout the state. Touro Infirmary operates with one bed. These patients are put to bed for 24 hours and then are seen for three weeks in the clinic. The cost is less than $60.00 per year per patient. The need for social workers cannot be met in all communities. In smaller communities, the doctor is his own social worker. Very often there are no nurses, no laboratory technicians. A pneumothorax clinic can be established in your community. Our clinics are open for instruction without charge in the technic of pneumothorax, and every facility we have in New Orleans is open to you.

Dr. Charles R. Gowen (Shreveport): I have been doing tuberculosis work in this state and have been running a private clinic for 17 years, but have constantly felt the need of more public clinics to handle a large group of tuberculosis patients who are unable to pay the fees for private treatment. This state is far behind in public health work in tuberculosis. The reason for the delay in tuberculosis work is rather difficult to explain, but I feel that Dr. Jacobs' beginning will stimulate other sections of the country to carry on with similar plans.

At my clinic we have 30 or 40 persons with pneumothorax under treatment at all times. We find that it always enables a patient to leave the sanatorium earlier, thus cutting down the patient's expense and the cure can be completed by the patient's return for treatment.

The length of time the lung should be collapsed was not brought out by Dr. Jacobs, but this is very important, I feel. All cavities should have been closed for 18 months, preferably two or three years, before they are allowed to expand. This should be shown by a careful check up, x-ray and sputum examination. The patient should be free from tubercle bacilli for two or three years before the lung is allowed to expand. If this is not carefully checked the lung will become reactivated and the trouble will spread very rapidly.

The complications in pneumothorax are many and it is not as simple an operation, in my opinion, as Dr. Jacobs has seemed to present. There are many factors to be watched and the patient's activities should be under constant supervision. The problem of dealing with adhesions is probably one of the most difficult to cope with. All adhesions should be cut as soon as possible after beginning pneumothorax. This should be done only by experienced individuals with no chances taken.

It is very interesting to note that a good many physicians feel they can not afford pneumothorax apparatus. I have used many kinds and am now using equipment costing close to sixty cents, not sixty dollars as advertised in most medical journals. Many patients are subjected to pneumothorax without rhyme or reason and in such cases a great deal of harm is done.

The type of needle used is extremely important. I prefer an 18 or 20 gauge needle with right angle bevel. This is not sharp enough to do harm if it should touch the lung. I also think it is best to use local anesthetic; however, good results are obtained without it.

Dr. Sandidge, in Shreveport, of the Caddo Parish Health Unit, has started a pneumothorax clinic similar to Dr. Jacobs'. He has started this in the last six months and is getting splendid results. I am glad to see that the Touro Infirmary is starting this work and wish them success.

Dr. C. H. Pember (Alexandria): I have been working in the tuberculosis field for 20 years, ever since the World War. In the Veterans' Hospital, I have now 98 beds, with 70 some odd patients at one time. Practically all my patients have far advanced tuberculosis with cavitation. Very seldom

do I have patients with unilateral disease. I have had a few to whom I gave bilateral pneumothorax with good results. One lung would become arrested and I would then continue on the other side. I have been treating some of the patients for four years; I have had others three, four and five years. I have half a dozen returning for refills, some every two weeks, some three weeks, some once a month for whole or partial collapse. I am dealing with men 40 years of age and up. I have two or three patients who are peace-time soldiers in their twenties; they are far advanced.

Many physicians say they collapse the lung completely, but they really get only partial collapse. I do not know whether I have ever seen one completely collapsed. Every one can give pneumothorax but they have to be careful. They will meet many difficulties. They can break the needle which is very embarrassing. Again you will find people coming to you who have been in a sanatorium taking pneumothorax for a year or two and they ask, "Doctor, can you give pneumothorax? How long have you been giving it? Do you give it in the front or back? Do you give novocaine? Do you use the needle without deadening the tissue?"

These clinics are excellent but I have the only one within many miles. Patients do not want to leave my place because they cannot get the pneumothorax elsewhere. Clinics, widely scattered, would be a good thing.

Dr. E. S. Baker (Alexandria): I do not have very much to say about pneumothorax. Dr. Pember has so much more to do with it than I. I have the colored tuberculous patients. It has been remarked that they do not get worse when you give collapse. I have followed two patients in whom the opposite lung became much worse. Three men in St. Louis, Traham, Singer and Ballon, in their book, are rather conservative. They say there may be danger in giving pneumothorax. Unless there happen to be adhesions in the lung in the mediastinum, you may compress the good lung. That is what happened in two of my patients who got increased infection in the opposite lung. These men are conservative about collapsing the lung. They urge that precaution be taken. I believe conservative treatment should be advised before instituting pneumothorax.

Dr. I. L. Robbins (New Orleans): I regret that Dr. Pember had the remarks to make that he did. We know how proverbially conservative doctors are. We have been asking for years, "Why do you not do pneumothorax more often?" The constant reply is, "My teachers or some physician told me it is dangerous." It seems to me that as physicians we have learned that any of the things we have worth while in the practice of medicine are fraught with danger. I insist that in the majority of cases, if the practitioners are talked to and explanations concerning the dangers of this are given; if we let them see artificial pneumothorax done and see that needles do not break off any more than when doing a spinal puncture; that the pleura does not become infected except very infrequently; that we are not obliged except occasionally to extract pus or blood from the pleura, then the procedure will become more general.

If we are to get anywhere in collapse therapy, in the treatment of tuberculosis, we ought to quit throwing cold water on the procedure. What if it is dangerous? So is tryparsamide, as it does cause optic atrophy and blindness. We know also that salvarsan is dangerous, and yet no one stops giving salvarsan. Complications such as arsenical dermatitis and even death occur in all probability more commonly than complications following artificial pneumothorax. So I believe the thing we ought to do is foster the idea of more pneumothorax therapy. So far as giving it early—this is a moot question. We are told not to wait. This should only be done where the patient can be carefully observed. I do not think we ought to wait for these patients to get worse before inaugurating therapy.

We ought to know also that pneumothorax therapy is not difficult to employ, that it can readily be taught to the general practitioner.

We have all the material at hand even though we have no specific to bring about a rapid decline in tuberculosis in our community, but we are not using that material, especially artificial pneumothorax, at the present time because we are being unduly and unjustifiably frightened into not using that treatment.

I have seen patients fall on the floor or die on the table during the course of pneumothorax therapy but feel that it is important to put the idea over that sometimes years may go by without any complication or fatality in the hundreds and thousands of refills in patients we treat at Charity Hospital and in our private practice.

Dr. Ladislas Lazaro (Opelousas): I am sure that we all appreciate the fact that patients with tuberculosis should be seen in the earliest stages to begin successfully pneumothorax therapy. There is one point which is quite debatable, and I would like to ask Dr. Jacobs to touch upon it in his discussion. I would like him to tell what factors he utilizes in determining when pneumothorax should be discontinued after the sputum has become negative and the patient's physical condition has improved.

Dr. Sydney Jacobs (In conclusion): A paper on tuberculosis ought to stimulate people to talk about tuberculosis, and if anything I have said may make them think more about the potentialities of pneumothorax and its use, the paper has accomplished its purpose.

Unfortunately, it is not possible to reply to each one of the discussors separately, but I shall try to answer the questions raised.

The problem of expense is an important consideration. The successful use of pneumothorax is

the most economical treatment devised for tuberculosis, especially if early induction is done.

I believe, as Dr. Hockett pointed out, that the family doctor can keep his patient by instituting artificial pneumothorax early. He keeps the patient at home, prevents spread of infection to others and enables the patient to be a self-supporting and self-respecting member of the community at an early date.

Dr. Gowen asked about length of treatment. Pneumothorax should not be discontinued before eighteen months. Two years should be the minimum, and where there is a cavity, three years after the cavity closes, that is, counting from the time of cavity closure and not from the time pneumothorax was begun. For discontinuing pneumothorax, I prefer the plan of allowing the lung to re-expand gradually, following with sputum—fluoroscopic and x-ray examinations. When the lung appears to be healed, re-expansion may be allowed further but the process must be continued for many months. If the lesion appears to be reactivated, pneumothorax is immediately re-instituted.

The dangers of pneumothorax, as Dr. Robbins stated, have been far too much exaggerated and have been stressed more than the potential advantages. The unchecked advances of tuberculosis have killed many times the number of patients who have been even slightly affected by the untoward effects of pneumothorax. The complications of this procedure are in direct proportion to the extent of the disease. Fluid will form in a small percentage of patients with minimal disease; in the moderately advanced, the number increases; and in the far advanced, the number is quadrupled. The earlier patients have pneumothorax, the earlier they will return to work and the less chance there is for complications to develop.

The problem of adhesions, as Dr. Gowen pointed out, was one that formerly limited the use of pneumothorax, but today we have an operation for cutting adhesions. Included in the series of unsuccessful cases were two patients who have since had pneumolysis done and now have successful pneumothorax.

The point has been made that occasionally there may be a spread to the opposite lung. If it is seen within the first two or three weeks of pneumothorax application, I do not think you can blame it on pneumothorax; you may say the spread was going to occur and it happened to coincide with the induction of pneumothorax. In the majority of instances, when a technically satisfactory pneumothorax is produced, progression does not occur.

I would like to close by stating the three objectives given in the beginning of my paper: This is a plan for making the patient non-infectious to others, for stopping the spread of the disease in his lungs, and for restoring him to working conditions.

ABDOMINAL PREGNANCY

REPORT OF CASE

J. M. BODENHEIMER, M. D.
SHREVEPORT, LA.

According to Bronaugh, abdominal pregnancy occurs once in every 20,000 cases of pregnancy. Within the past four years three such patients have been seen in the Shreveport Charity Hospital, during which time less than 10,000 women have been delivered.

PREOPERATIVE DIAGNOSIS

That the condition is not commonly diagnosed preoperatively is well attested by the fact that only 83 out of 236 cases collected from the literature were diagnosed before operation. One of the three cases in the Shreveport Charity Hospital was diagnosed before operation. Craig, who quotes Litzenberg, states that primary abdominal pregnancy never occurs. What happens, he says, is that the placenta, which remains attached to the tube when a tubal pregnancy ruptures, continues to grow and attaches itself to other viscera, the fetus growing in the abdomen. The presence of the placenta as a rule in the pelvis lends credence to this theory, although one case is reported where the placenta was adherent to the liver.

TIME OF OPERATION

When to operate is a debated question. There are three opinions which I have gathered from the literature, all based upon sound reasoning: (1) At once; (2) after the fetus is viable; (3) after the fetus is dead. The greatest danger of waiting until after the fetus is dead is the added danger of sepsis. Waiting until the fetus is viable has a religious background inasmuch as statistics show that over 50 per cent of the viable fetuses died and even a larger percentage of the children were defective. Operating at once appears to be based upon the soundest surgical judgment as the risks to the mother appear least, due to the fact that physical deterioration of the mother is progressive.

CHOICE OF OPERATION

There is a choice of three methods of procedure: (1) Complete excision; (2) marsupialization, or partial closure with drainage; (3) not disturbing the placenta. Of course if the placenta is easily removable, complete excision is permissible, but one never knows until after the attempt is made whether or not it is easily removable and then if the judgment is in error, the hemorrhage is, to say the least, disturbing. Marsupialization, or partial closure with drainage, long the standard method of treatment as recommended in many textbooks up until recently, has the many disadvantages of sepsis, shock and other complications. Leaving the placenta undisturbed seems to be the safest and most rational method of procedure. The fetus is extracted from the abdomen, the cord tied and cut close to the placenta and the abdomen closed with or without drainage. The patient runs an uneventful postoperative course not unlike an ordinary abdominal section and by the third or fourth week the placenta has been practically absorbed.

MORTALITY

Out of 316 cases collected from the literature, 101 mothers died, a mortality rate of over 30 per cent. With the general use of the plan of leaving the placenta undisturbed and operating at once, the maternal mortality rate should be markedly reduced.

I wish to report a case treated in this manner:

CASE REPORT

E. B., a colored female, aged 33, was admitted to Shreveport Charity Hospital August 3, 1939. The admitting diagnoses were pelvic abscess (?), uterine fibroid (?), rectal stricture (?). Personal history: She had been very sick for the past two or three months, with a chief complaint of constipation. About three months previous to admission, a large mass appeared in the right lower quadrant which was visible, palpable and painful. At this time she had a very high fever which lasted several weeks and left her markedly prostrated with loss of weight. For the past two months her condition has improved, but constipation and vomiting have increased to such a degree as to require two enemas daily. Purgatives griped her to such an extent that they could not be taken. She says that she was sent into the hospital by her doctor for the removal of the pelvic mass. Her last menstrual period occurred two months ago, but was scanty. She had menstruated two months previous to this last menstruation. She has always been irregular.

The physical examination revealed a well developed, undernourished, dehydrated negro female. Head and chest, negative; breasts flat and no secretion can be expressed. There is a well marked visible peristalsis of the small bowels through a thin abdominal wall. Two inches to the left and one inch below the umbilicus can be felt a small mass about the size of the index finger which gives one the impression of a small leg. The pelvis is frozen and the uterus and appendages cannot be mapped out; there is noticeable tenderness.

Laboratory examination: Red blood cells 3,560,000, white blood cells 10,000, hemoglobin 61 per cent. Wassermann, negative; urine examination, negative. Sedimentation test 24 in 60 minutes.

Operation: Under gas ether anesthesia, the abdomen was opened in the median line from symphysis to umbilicus. The omentum was found spread out thinly over the entire abdomen, and lying in the abdomen on the left side, head against diaphragm, was a live five months' fetus floating free in liquid. The placenta was attached to the pelvic organs presumably, but the adhesions were so dense that no attempt was made to locate its exact attachments. The fetus was extracted and the cord tied securely with chromic catgut no. 2, close to its placental origin. The abdomen was closed in layers with catgut and silkworm catgut and a small cigaret drain left in the lower end for 48 hours on account of the fluid which had become bloody while tearing through the omentum. The time of operation was thirty minutes. The patient made an almost uneventful recovery, her temperature never rising above 100° F., pulse rate between 90 and 100, respiration around 20, except on the third day when milk appeared in her breasts. On account of her anemia she was given 500 c. c. citrated blood on the third postoperative day. The engorged painful breasts, which persisted for more than two weeks in spite of strapping and the use of camphor and belladonna, was an interesting phenomenon.

The patient was up and about the ward on the tenth day following the operation. Upon pelvic examination on the twenty-third day, the uterus could be easily outlined and a small mass, presumably the remains of the placenta, was felt just about the fundus uteri.

The fetus, which had been placed in an incubator immediately following delivery as a mere gesture, lived four hours.

SUMMARY

1. The statistical literature has been reviewed.

2. The time and method of operation are considered.

3. An instance of a patient is reported in whom operation was performed and placenta left undisturbed.

4. A plea is made for using this method of handling this condition.

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MEDICAL ECONOMICS

Plank No. 6 of the platform of the American Medical Association says, "In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established" are advocated. This particular plank arouses much interest in the mind of the medical man who has followed some of the efforts, it must be confessed rather abortive, on the part of the central government, to aid in what it thinks is a necessity, namely to build hospitals here, there and everywhere. The efforts of the government in this direction have been woefully weak and ill-advised; for example in the State of Michigan hospitals have been constructed in small towns which are absolutely unable to pay for the upkeep, nor do they have the medical personnel to man such hospitals on a large scale. It perhaps may be that President Roosevelt's scheme of building hospitals that will cost from $100,000 to $150,000 may work out satisfactorily. These hospitals would be for the ordinary medical and surgical cases, and the more difficult problems which require the help of specialists might be referred to the larger centers.

But the question arises how many urban localities, large and small, are there where there are not already hospitals available for the population as a whole? Most hospitals, it has been shown by the American Medical Association, do not begin to run to capacity; there are many, many beds available. Why, if these hospitals already established are not filled, should not they be used for the care of the indigent rather than building additional competitive institutions? It is true that many of the hospitals throughout this country are small private institutions owned by a physician or a small group of doctors. It would be very much cheaper and simpler than constructing big institutions to make use of these hospitals that already exist. If the government should pay the privately owned hospitals for the cost of the care of the indigent it would not have to go into huge capital expenditures.

To many it looks as if the government, far from being worried about the deficit, was looking for ways to spend money. In Louisiana an announcement appeared in the press the second week of January which stated that three million dollars were to be spent immediately on extensions and remodeling of the Marine Hospital at Carville. Those familiar with this institution

know that in its present state it serves as a well equipped, well constructed, comfortable retreat for these poor unfortunates. The whole institution at present might be said to be quite up-to-date and yet a program is on which will eventually require the spending of five million dollars for construction. This would represent an expenditure of capital which will amount to approximately $14,000 for each inmate of the institution. To the disinterested observer it would seem that these people, who are largely there for institutional care rather than for medical treatment, could have a mighty fine individual home built for each and every one of them at this cost. Like so many of the governmental expenditures, all this seems like a waste of money.

If the government should take over the medical services in the United States an uncontrolled, reckless expenditure of funds would probably result. Doctors are not economists but in expending funds they would and could do very much better than lay bureaucrats whose sole purpose is to get as much money as they can for their particular branch of the service. Certainly the physician would not willingly expend large sums unless there was a real necessity for such monies to be disbursed.

GRADUATE MEDICAL ASSEMBLY

It has been pointed out in this section of the Journal that the fourth New Orleans Graduate Medical Assembly will be held February 26-29, the meeting being dedicated in honor of the sixtieth year of Dr. Matas' medical life. It is to be hoped that because of this anniversary there will be a large attendance. There are so many men who love and honor this country's most distinguished surgeon that it is believed many will come to pay tribute to a truly great man.

The tentative, practically completed, scientific program with a list of speakers is printed elsewhere in the Journal. It might be well, however, to call attention to some of the really prominent men in medicine who will deliver talks and give clinics.

In the surgical division the surgical heads of two of the very important medical schools in the East, Harvard and the University of Pennsylvania, will appear on the program. Dr. Elliott C. Cutler, at the present time the Moseley Professor of Surgery and surgical chief of the Peter Bent Brigham Hospital, will not only deliver several scientific presentations but he will also give a half hour talk on the accomplishments of Dr. Matas, and he will conduct a surgical pathologic conference with Dr. Shields Warren. Dr. Cutler's career is one of brilliance. In college and medical school he was the recipient of membership in honorary societies, including Phi Beta Kappa and Sigma Xi. During the early years of the World War he worked in Paris, came back to this country to the Rockefeller Institute for duty, subsequently being commissioned as Major, and on leaving the service was awarded the Distinguished Service Medal. The next few years were spent at Peter Bent Brigham Hospital and Harvard University and in 1924 he was called to the Chair of Surgery, Western Reserve University School of Medicine, which position he held until his return to Harvard.

Dr. Eldridge L. Eliason has spent all of his medical life at the University of Pennsylvania. Graduating from Yale University, where he was not only a brilliant student but an outstanding athlete, the holder of half a dozen or more Y's, he then went to the University of Pennsylvania Medical School where he was an honor student. He gradually rose in the surgical ranks by industry and intelligence to the position which he now holds, the John Rhea Barton Professor of Surgery. During the War, Lt. Col. Eliason served for two years, one year of which time he was head of the surgical division of the University of Pennsylvania Base Hospital. Dr. Vilray P. Blair is another surgeon who has made for himself a superb position in a special division of surgery. He is one of the best known of the plastic surgeons in the country. He is Professor of Clinical Surgery at the Washington University School of Medicine

and of Oral Surgery in the School of Dentistry in this University.

In the more limited specialties, four men are on the program who would be known to any one who engages in their speciality. Dr. Henry E. Michelson, of Minneapolis, who will talk on dermatology for the general practitioner and on the treatment of common skin diseases, is Professor of Dermatology at the University of Minnesota Medical School and Professor of Medicine, Dermatology and Syphilology in the Graduate School of Medicine of the same University. Dr. Donald S. Childs is Professor of Clinical Radiology in the College of Medicine of Syracuse University. He is a member of all the important radiologic societies in this country. He will, in his talks, also confine himself largely to the subjects which are of interest to the man who is in general practice, the gist of his talks being radiology for the general practitioner, and the care of the carcinoma patient. Dr. William Mithoefer was one of the early specialists in his particular field in which he has obtained a national reputation. At the present time he holds the position of Senior Attending Otolaryngologist at Christ Hospital, Cincinnati, Ohio. His talks will be of general interest, the first has to do with what the general practitioner should know concerning the nasal accessory sinuses, and the second on the frequency and treatment of benign hypothyroidism. The field of orthopedics will be represented by Dr. M. N. Smith-Petersen who has been head of the orthopedic department at the Massachusetts General Hospital since 1929, and is also Professor of Orthopedic Surgery at Harvard Medical School. The subject of this well-known orthopedist will deal with the hip; in one talk he will discuss arthroplasty and in the other, internal fixation of fractures of the hip.

It will be seen from the list of speakers and from the titles of their presentations that for the most part this meeting will be of comprehensive interest to physicians, whether they be general practitioners or specialists.

POLIOMYELITIS IN LOUISIANA

It has been pointed out repeatedly in the section "Infectious Diseases in Louisiana" in the State Society News, that cases of poliomyelitis have been reported to the State Board of Health recently to a considerable number. Of course poliomyelitis in Louisiana has never reached epidemic proportions, but almost regularly of late every week there are one or two or even more patients listed as having this disease. Poliomyelitis, although in a large number of instances is not a fatal malady, nevertheless is one which is crippling and disabling, not temporarily, but usually for the life of the patient. Anything that can be accomplished in order to diminish the incidence of poliomyelitis, it hardly goes without saying, should be done.

It has been shown by Paul and his associates[1] that urban sewage contains poliomyelitis virus at times in concentration sufficient to reproduce the disease in the experimental animal. This work followed the known fact that the virus of poliomyelitis has repeatedly been isolated from human feces. These observations are particularly pertinent because of a publication in Science by Casey and Aymond,[2] emanating from the Louisiana State University School of Medicine and the Louisiana State Board of Health. These authors pointed out that during a ten year period which came to a close the first of last year, in Louisiana there were 766 cases of poliomyelitis, practically all of those involved becoming paralytic. As indicated above, probably the majority of the cases were reported in the last five years.

Casey and Aymond show that among these reported cases the highest rates of poliomyelitis, 120 per 100,000 inhabitants, were found in communities where the population was between 100-2,999. In some small urban communities the rate was 68.2 and 92.7 per 100,000 population. The rate was three times the rate in the strictly rural communities and larger cities of over 5,000 population. The greatest incidence was in towns of between 1,500-2,000 inhabitants.

In the eighty-seven incorporated communities which have a water supply but do not have a sewerage system, there was a rate of 83.6. The highest rates for poliomyelitis, 120 cases per 100,000, were found in the communities in which there was a relatively small average daily water supply per capita. The figures are very much lower in these communities which had and used a greater amount of water.

The two recorders of the above data believe that a greater amount of fluid, either through dilution or by increase in the rate of flow, has a definite effect on diminishing the incidence of this disease. They suggest also that the epidemicity of poliomyelitis may be influenced by the tendency of certain communities to liquefy their excreta, yet not making proper provisions for the disposal of the accumulated fluids.

Summarizing these observations it might be pointed out that proper sewage disposal might well result in a diminution of the incidence of poliomyelitis, and that there might as a result of this, be fewer of these dreaded cases in the state.

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HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

SOUTHERN BAPTIST HOSPITAL

New Orleans

A regular monthly meeting of the staff of Southern Baptist Hospital was held January 23. The program consisted of a presentation of motion pictures on plastic surgery by Dr. Waldemar Metz and a talk on spontaneous pneumothorax by Dr. Julius L. Wilson. Following the scientific program these officers were elected: Dr. Charles L. Cox, Chairman; Dr. J. T. O'Ferrall, Vice-Chairman; Dr. Garland Walls, Secretary; Dr. Robert Sharp, Treasurer.

TOURO INFIRMARY

New Orleans

At the meeting held in June, 1939, the following paper was presented by Dr. R. S. Crichlow:

THE USE OF PRONTOSIL LOCALLY IN INFECTIONS OF THE EYE

One year ago in the Eye Clinic at Touro I began the use of prontosil locally in treating acute conjunctivitis. At that time we had a number of patients we had been treating in the usual way who had responded very slowly to the treatment. Several had been under treatment from six weeks to two months. The smear showed mostly a mixed infection; staphylococci, diphtheroids, *Streptococcus hemolyticus* and *viridans*. I began the instillation of prontosil 2½ per cent into the eyes of these patients and had the patient use the same solution at home, first washing the eye with a weak boric acid solution, then using the prontosil three times a day.

In practically every instance we obtained good results. In one week to ten days' time the eye infection was cured. In two patients it did not work, due to the predominance of staphylococci. Some ten of the patients were babies.

Two eye infections of gonococci were treated in the same way except applications were every four hours; resulting in a cure with no corneal destruction. We have also used it in ulcer of the cornea and in two patients used it both locally and internally, with success in both instances.

I have used it also in pneumococcal infections of the eye, or so-called "pink eye." This condition, as you know, is self limiting, but prontosil has a definite influence on shortening the course of the disease.

One of the most striking results was a patient of Dr. Blum in whom he had been trying to get the eye sterile for operation for many months. We began the use of prontosil in the eyes and in one week's time had a sterile field for operation.

During the past year I have treated about one hundred patients in this clinic and my private work with prontosil, and in 90 per cent of the patients treated have obtained the results desired.

This drug is not a panacea for all ills, but it is a definite adjunct to treatment of eye infections locally, caused especially by streptococci, diphtheria, pneumococci, gonococci, *Streptococci hemolyticus*, and in mixed infections where the staphylococci does not predominate.

May I list a few of the points of interest in its use locally: (1) In instillations as used, it is nontoxic and non-irritating to the eye or mucous membrane; (2) where there is a quantity of pus it is always best to irrigate the eye with a weak boric acid solution before instillation; (3) in all infections except gonococci I have found it best to have the instillations made three times daily. If made every two or three hours you get an irritating effect, which clears on stopping use of the drug for 24 hours. In gonococci it is best to use it every four hours; (4) where more rapid action is wanted, as in streptococcal (erysipelas) infection,

it is best to combine the internal use with the instillation.

I would like Dr. Blum to report on his observation and use of this drug.

A meeting of the medical staff was held on Wednesday, January 10. The program consisted of a clinicopathologic conference led by Dr. John Lanford. Following this presentation Dr. Warren Rosen read a paper entitled "The Causes of Postoperative Deaths Based on an Analysis of 944 Cases."

HUTCHINSON MEMORIAL CLINIC OF THE SCHOOL OF MEDICINE THE TULANE UNIVERSITY OF LOUISIANA

New Orleans

Scientific Session conducted by the Department of Tropical Medicine, December 6, 1939, Dr. E. C. Faust, presiding.

Diagnosis and Treatment of Oxyuriasis (Dr. Willi Sawitz): Oxyuriasis presents diagnostic as well as therapeutic problems which are quite different from those of other parasitic infections. This is due to the rather unique, though simple life history of pinworms.

It may be recalled that the adults live in the appendiceal region of the intestinal tract, and that the gravid females migrate down into the rectum and, usually at night, out of the anus to deposit their eggs on the perianal and perineal region of the patient. Each female lays about 11,000 eggs, and the mother worm dies after oviposition. The eggs soon become infective and, when ingested, give rise to a directly developing adult. The whole life span of a pinworm is probably less than two months.

The diagnosis of any parasitic infection is based on clinical symptoms, immunologic tests or on the recovery of the causative organism. In oxyuriasis, the clinical symptoms are too variable and vague to permit a diagnosis. A slight increase of eosinophils may occur. Brady and Wright (1939) found an average of 5.1 per cent eosinophils in an infected group as compared to 3.7 per cent in a negative control group, although with a considerable deviation from the mean in both groups. Oxyuriasis patients sometimes complain of vague abdominal pain, even of nausea or vomiting. Restlessness at night is attributed to the annoyance caused by the migrating worms. Dark circles under the eyes and a pallid facies may be present in spite of a normal hemoglobin determination. Pruritus ani may occur due to a mechanical irritation by the migrating worm or an allergic reaction of the patient to the pinworm material. Pinworms may cause enuresis and, in females, a vaginal discharge when they migrate into the vulva.

These clinical symptoms, however, are not always present and when present, are not specific for oxyuriasis. A diagnosis cannot be based on them alone.

Immunologic reactions in oxyuriasis were demonstrated as early as 1913 by Trumpp, who showed that extract of powdered worms may be employed as antigen in skin as well as complement fixation tests. In 1924, Grubel obtained satisfactory immediate skin reactions with a saline worm extract and Schroepfl, in 1926, a delayed skin reaction with an alcoholic extract. In 1937, Wright and Bozicevich used a 1:5,000 saline extract of powdered worms and obtained a positive reaction in 95 per cent of known positive cases. However, positive reactions were also obtained in cases where pinworms were not present. In 1939, Tsuchiya and Bauerlein, employing a Coca's solution extract, obtained reactions in agreement with parasitologic findings in 85 per cent of 34 cases.

The results obtained by these workers indicate that immulogic tests may be an aid in the diagnosis of oxyuriasis, but are not yet sufficiently perfected to give consistent results. In addition, they are not practical, since it is difficult to obtain the large number of pinworms needed for the preparation of the antigen.

The demonstration of the pinworms or their eggs remains the only specific diagnostic procedure. Fecal examination for pinworm eggs is unreliable since the worms usually do not oviposit while in the intestinal tract. Eggs were found in stools in only 56 of 358 positive cases, in which comparative examinations were made in our Department last summer. Eggs are best recovered from the perianal and perineal skin, where the mother worm has oviposited. Adult pinworms may be found after being passed per anum voluntarily or after administration of an enema. However, the finding of adult pinworms or eggs is no conclusive evidence of pinworm infection, but marks the terminal point of infection with this individual worm. " . . . the finding of pinworm eggs merely establishes the fact that pinworms have been present recently, and the probability that other pinworms are still present." (Hall and Cram, 1939). This probability, however, is great, and in our series of 154 individuals positive for pinworm eggs, more than 70 per cent showed more than once when seven consecutive examinations were made.

Several technics have been recommended for obtaining material from the perianal region for microscopic examination, including the use of curettes, spoons, glass tubes, glass rods, metal, wooden or glass spatulas, matches, cotton pledgets and other devices. The cellophane swab technic devised by the late Dr. Maurice C. Hill, National Institute of Health, has been found the most satisfactory. In order to obtain the material, the cellophane-tipped glass rod is passed radially among the perianal folds and over the neighboring perineum. The cellophane of this NIH swab, with the mucus and fecal material adhering to it, is

placed directly under the microscope and examined, thus avoiding possible loss of eggs during transfer. Since pinworms usually migrate when the patient goes to bed, this hour would be the optimum time for obtaining the swab. However, the early morning is more convenient, immediately when the patient arises and before he goes to the toilet or bath. Since pinworms do not necessarily migrate every night, a single negative swab examination does not exclude oxyuriasis. The swab examinations have to be repeated, and repeated swab examinations have revealed additional infections. The number necessary to ascertain the absence of pinworms has been determined as being seven. The swabs are best if obtained on alternate days.

More than 99 per cent of the positive cases were detected by the use of seven NIH swab examinations. Thus, this improved diagnostic technic provides a means to evaluate more accurately methods of treatment recommended for oxyuriasis.

The treatment of oxyuriasis may be directed against anyone or all of the following three sources of infection: against the mature worms in the appendiceal region, against the gravid females in the rectum and against the worms and eggs in the anal cleft and on contaminated environmental objects.

A number of drugs have been recommended for the removal of mature worms, including santonin, oil of chenopodium, thymol, naphthalin, aluminum compounds, carbon tetrachloride, turpentine, male fern, tetrachlorethylene and hexylresorcinol.

Since the absorption in the intestinal tract diminishes the efficacy of drugs in the large intestine, the removal of gravid females from the large intestine is better accomplished by purgatives—salts or calomel—or by the use of enemas, medicated or non-medicated. Medicated enemas utilized sodium chloride solution, vinegar diluted 1:4, acetic acid solution (1 per cent), onion decoction, oil of chenopodium (15-25 drops shaken up in one liter of water), phenol solution (1-10 minims in one pint of water), corrosive sublimate solution (1:10,000), benzol (10 minims emulsified in one ounce of egg-yolk and two ounces of water), quassia (one ounce steeped in one pint of hot water), solutions of lime water or formaldehyde, hexylresorcinol enemas and jelly, and soapsud enemas.

To destroy worms or eggs in the anal cleft an anal wash or ointment has been used, such as official unguentum phynolis (3 per cent), unguentum hydrargyri ammoniati, a 1:10,000 bichloride solution, silver nitrate solution, a camphor ointment, thymol ointment, quinine ointment and paradichlor-benzol ointment.

Additional rigid individual and general cleanliness measures were recommended to prevent reinfection.

Most of these measures and drugs have been recommended on the basis of temporary clinical improvement or the failure to observe worms in the stools. They have not justified the hopes raised when first advocated. When tested (Wright, Brady and Bozicevich) by a sufficient number of cellophane swabs, tetrachlorethylene had an efficacy of about 50 per cent, santonin of less than 50 per cent, hexylresorcinol by mouth and as jelly an efficacy of about 35 per cent, and by enemas (1:2,000) of 40 per cent. In 1938, Wright, Brady and Bozicevich introduced medicinal gentian violet in enteric coated tablets for the treatment of oxyuriasis and reported a cure rate of 91.8 per cent when the individuals were tested during the first three weeks after treatment and 57.9 per cent when tested seven weeks after treatment. Later on, a new type of coating was used as manufactured by the Seal-ins Laboratories. These tablets are said to dissolve in the intestinal tract within a specified number of hours, depending inversely on the thickness of the special coating. Tablets of the four hour type are used, which are said to dissolve in the fecal region. One grain (two tablets) is given three times a day before meals for eight days and this course is repeated after a seven day rest period. More than 80 per cent of those treated with the new type of coating were found negative when tested seven weeks after treatment. The efficacy of Seal-ins coated gentian violet tablets has been studied by us and the work of Brady and Wright confirmed in groups of institutionalized children in New Orleans, especially when compared with the effect obtained by preventive measures alone. Since the life span of pinworms probably does not exceed two months, a cure might be expected by eliminating reinfection. Since no method safe for the patient is known that will destroy the eggs on the perianal skin, preventive measures have been directed mainly against eggs contaminating environmental objects. Eggs have been recovered from environmental objects, as the inside of pajama pants, bed sheets, mattresses and the framework of beds, floor cracks, ledges of pillars, doors and windows, bath tubs, wash basins, toilet seats, dresser and cabinet tops, shelves, picture frames, ceiling lights and chandeliers. A cleanliness program was inaugurated in a New Orleans home for children, 69 boys and girls, 38 per cent of whom were infected with pinworms. Rigid hygienic measures were carried out in this institution, which was already scrupulously clean. Two extra housemaids were employed; every room was cleaned with hot water and soap daily; the children wore short cotton pants during the night, these pants being changed and sterilized daily; bed sheets were changed and sterilized daily; underwear was changed daily and sent to the laundry; nail brushes were provided for each child and their use enforced; two showers were taken daily instead of one. These measures were carried out for a period of six weeks at a cost of more than 700 dol-

lars. The results of this preventive treatment revealed that 29 per cent of the previously infected persons were still infected and an additional 22 per cent had become infected. This actual increase from 38 per cent to 51 per cent is conclusive proof that hygienic measures *per se* do not suffice to eradicate pinworm infections in institutionalized children groups, and that medicinal treatment must be employed. In two other institutionalized children groups gentian violet treatment was given with variations in dose and length of medication time, and an efficacy of about 90 per cent was found when these children were examined by means of seven NIH swabs made within 26 days following treatment.

The drug, in general, was well tolerated and untoward symptoms, never of a serious nature, could be alleviated by stopping medication for one or two days. About half of the children who took one grain of gentian violet three times a day and one-third of those who took one-half grain complained of loss of appetite, abdominal cramps or nausea at one time or another. Vomiting occurred, but its frequency was low, when computed on a basis of the total number of doses of the drug administered. It occurred more frequently in girls than in boys.

While medicinal gentian violet will, therefore, cure about 90 per cent of individuals infected with pinworms, this treatment alone does not comply with the requirements necessary for the eradication of oxyuriasis. To be efficient treatment must be 100 per cent effective. If an anthelminthic removes 90 per cent of the hookworms harbored by a person, the treatment will usually have reduced the infection to one of non-clinical significance. It will remain in this status or become completely eradicated if the patient exercises the simple precautions necessary to prevent reinfection. In the case of oxyuriasis, however, the removal of 90 per cent of the worms affords only transitory relief. The remaining infection will soon be built up to a higher level (Wright and Cram, 1937). Furthermore, the ease of reinfection and the lack of any known method to prevent reinfection make it almost worthless to treat one particular patient. Although restriction of direct contact with infected individuals or contaminated objects and individual cleanliness may reduce the opportunities of infection, a single infected individual in institutionalized groups as well as in families is a probable source of reinfection. Examinations of families in the Hutchinson Memorial Clinic have shown that almost invariably other members of the families were infected in addition to the original patients.

The treatment of a pinworm-infected individual, therefore, should include the following:

1. The determination by means of NIH swabs of all infections among those living with the patient.

2. The treatment of those found infected with medicinal gentian violet in Seal-ins coating of the four hour type; ½ to 1 grain three times a day before meals over a period of two to three weeks with or without rest periods between, depending on the tolerance of the patient to the drug.

3. Post-treatment examinations of the whole group and repetition of treatment for those still found infected.

The Dangers of Strongyloides Infection: (Dr. E. C. Faust): First may I apologize for bothering you with a somewhat generalized biologic and clinical history of *Strongyloides*, the etiologic agent of strongyloidiasis. To refresh your memories I shall present a review of historic information leading up to the topic which I am presenting.

BIOLOGY AND LIFE CYCLE

The worm (*Strongyloides stercoralis*) was discovered in 1876 by Normand in French soldiers suffering from Cochin-China diarrhea. Later in the same year and in the year 1877 these worms were described and named by Bavay. Five years later, in 1882, the German physician and parasitologist, Leuckart, proved that the two phases (intestinal and stercoral) were parts of the same life cycle. In that same year Leichtenstern became convinced that the direct and indirect strains were distinct, the former being found in temperate zones and the latter in the tropics. Investigators found no males of the parasitic generation, hence they were inclined to believe this phase of the cycle was parthenogenetic. However, in 1926, syngony was postulated by Sandground, who found spermatozoa in the parasitic females.

In 1932 Kreis discovered the parasitic males. In the following year, Faust described the complete development of the parasitic males. The male is broadly fusiform, measuring about 0.7 mm. in length by 40 to 50 microns in greatest transverse diameter. There are no caudal alae, but two spicules and a gubernaculum are developed. The tail portion is pointed and is curved ventrad. The parasitic males are rhabditoid in type and are almost identical with the free-living males, having larger buccal chamber. They are not tissue parasites and after a brief stay in the body are voided in the feces.

PATHOLOGIC AND CLINICAL ASPECTS

In 1900 Askanazy proved that the females lived in the mucosa of the small bowel. In 1911 Looss, and later in 1914 and 1926, Fulleborn proved the soil to be the source of infection, the skin the portal of entry, and that a lung journey, as in hookworm disease, was required for infection.

Fulleborn, in 1914, and Faust, in 1936, found maturing and ovipositing females in the bronchial and tracheal epithelium. Larvae were found by J. G. Gage in 1911 and again by Froes in 1930 in the pleural and pericardial fluids.

The more characteristic symptoms of strongyloidiasis were first noted by Nathan Barlow, in

1915, and later studied by Hinman, in 1926. The most outstanding of these were diarrhea, frequently alternating with constipation, abdominal pain, loss of weight, nausea, vomiting and abdominal distention. To these there was added by Barlow, in 1915 and again by Faust, in 1938, the symptom of occasional uncontrolled watery diarrhea.

AUTOINFECTION (SELF-INFECTION)

Since 1887 self-infection has been postulated by several workers to explain the persistence of strongyloidiasis in patients living for 20 to 25 years outside of the areas of soil pollution; yet many workers even now are reluctant to accept this view.

During the years 1910-1911 J. G. Gage had a patient in Charity Hospital, New Orleans, with filariform larvae of *Strongyloides* in his sputum. At necropsy larvae were found in all layers of the intestinal wall and in the intestinal lymphatics. According to Gage, "the larvae penetrate the gut wall, enter the lymph stream, pass up the thoracic duct to the subclavian vein and reach the lungs by way of the blood stream, appear in sputum and when swallowed develop into adult worms." Additional clinical and pathologic evidence supporting internal autoinfection has been presented by Darling (1911), Yokogawa (1913), Ohira and Shimura (1918-1919), Ophuls (1929), Nalasco and Africa (1936) and Torres and Penna de Azevedo (1936).

In 1914 Fulleborn unsuccessfully attempted to produce internal autoinfection in dogs and sponsored the idea of perianal autoinfection. Schimura in 1920, Nishigori in 1928 and Faust in 1934 were all successful in developing internal infection in experimental dogs. A critical analysis of the pathologic and clinical reports on human strongyloidiasis previously referred to, together with the experimental work, should convince the most skeptical reader that hyperinfection (i.e. internal autoinfection) not only has been adequately demonstrated but, furthermore, is not unique. As additional documentary evidence in proof of hyperinfection, the following case report is submitted.

CASE REPORT

A 12 year old male was brought to the University of Arkansas Hospital, Little Rock, Arkansas, suffering with severe abdominal pain and in a moribund state. The family of this patient, consisting of six, resided in a one-room shack. They had all been ill with "intestinal influenza."

The patient's abdomen was moderately distended. However, he had no diarrhea and no fever. Blood examination indicated a slight leukocytosis and 4 per cent eosinophilia. The patient expired only a few hours after admission to the hospital and about four weeks after the onset of his intestinal attack.

In the limited autopsy done on this patient by the pathologist, Dr. Albert DeGroat, the following points are worthy of note: there were a moist peritoneum and enlarged mesenteric lymph nodes; many petechial hemorrhages on the serous surface of the lower ileum; the liver was small and showed fatty degeneration on section; the chest cavity showed only small patches of atelectasis in the lower lobe of the left lung. Sections were taken of the lower ileum, cecum, appendix, mesenteric lymph glands, and liver. Tentative pathologic diagnosis was "starvation." Sections of all of the tissues preserved at autopsy were sent to me. I found all stages of invasion of the bowel wall, lymph nodes and liver filariform larvae of *Strongyloides*.

Conclusion: The tissues definitely indicated an internal autoinfection with *Strongyloides*, probably resulting from inadequate host tissue reaction to the parasite.

TYPES OF CLINICAL STRONGYLOIDIASIS (RELATED TO THE BIOLOGY AND HOST-TISSUE RELATIONS OF THE PARASITE)

1. Rhabditoid larvae (only) are evacuated in the stool. No danger of self-infection in patients who cleanse themselves after defecation.

2. Rhabditoid larvae transform into filariform larvae in the perianal region if the patient does not cleanse himself after defecation. (Autoinfection of Fulleborn).

3. Rhabditoid larvae transform into filariform larvae in the bowel lumen in constipated patients and invade the bowel wall. (Internal autoinfection or hyperinfection).

4. Rhabditoid larvae transform into filariform larvae in the intestinal mucosa, producing hyperinfection.

5. Rhabditoid larvae in the mucosa migrate into the submucosa without metamorphosis and produce overwhelming hyperinfection.

Hyperinfection is not merely a theoretic possibility but is a fact based on documentary evidence, and may be accomplished in several ways as outlined above. Moreover, every individual harboring *Strongyloides* may be a potential case of hyperinfection, although the degree of danger depends on a number of factors over which the individual has considerable control, including: (1) personal hygiene, especially care against constipation and need to keep the anal and perianal areas free of fecal soil; (2) adequate nourishment, to provide a guarantee of the body's resistance against the parasite, and (3) early diagnosis and specific therapy.

The Therapeutic Uses of Atabrine (Dr. Joseph S. D'Antoni): Two years ago, at a staff meeting of the Hutchinson Memorial Clinic, Colonel Craig advocated atabrine as a therapeutic for malaria. The Department of Tropical Medicine has noted that there still exists a reluctance on the part of the physicians in employing this drug. Some may have stopped using atabrine after encountering untoward symptoms, while others may have been

impressed with the overemphasis of the effects associated with its administration. A perusal of the literature on this subject permits one to evaluate properly the advantages and disadvantages of the drug. The discussion presented is based on a compilation of data regarding the therapeutic use of atabrine in patients under physicians' care. It will not include its use in prophylaxis, or a comparison of atabrine to quinine treatment.

The Malaria Commission of the League of Nations, in its fourth general report on the treatment of malaria, advocated 0.3 gram per day for adults, administered in three doses of 0.1 gram or two doses of 0.15 gram. The dose for younger individuals is relatively large, children of 12 years of age sometimes requiring a full dose. This is a disadvantage because the dose is large in proportion to weight and the child organism is more sensitive to the drug than the adult.

The drug is primarily excreted in the urine where from 50 to 75 per cent of the total dosage may be recovered. The remaining portion is probably eliminated through the bowel. The drug has been found to be retained in the body over a period of from 36 to 69 days. This is very important because it follows that the dosage should never be repeated under a period of at least one month. The advantages of atabrine as a therapeutic for malaria include:

1. The period of administration is short.
2. The efficiency is at least equal to quinine and in most instances more efficient.
3. In pregnancy the disadvantage of increased uterine contractions noted with quinine is lessened when atabrine is given.
4. It is well borne in quinine idiosyncrasy.
5. It is used in cases of blackwater fever without recurrence of hemoglobinuria which has been so commonly noted after the use of quinine.

Among the disadvantages of atabrine may be listed:

1. The skin may show a yellowish discoloration due to a deposition of the dye under the skin. This is not a jaundice. Anemic individuals are more prone to this discoloration. Purgation during medication might prevent this discoloration.
2. Abdominal colic, nausea, and vomiting may occur. Purgation sometimes prevents these symptoms.
3. Psychosis: Since the advent of atabrine until June, 1939, 70 cases of psychosis have been reported out of 6,316 patients treated with atabrine, an incidence of 0.8 per cent. No evaluation of these cases will be made; other authors have done so and have found that of the 70 cases, probably only a few are the direct result of atabrine. The total number of persons treated with atabrine and reported in the literature from 1932 to 1938 where no psychosis has been mentioned exceeds 40,000; thus psychosis may occur in no more than one out of 500 patients treated with atabrine. C. C. Turner (1936) describes the psychosis noted in atabrine treated patients as a confusion evolving towards a catatonic type of dementia precox.
4. Peripheral neuritis: This has been reported in seven children who had been given overdoses of the drug.
5. Death: Six cases of death are reported in the literature. In practically every case cited the amount of atabrine given exceeded the dosage recommended by the Malaria Commission of the League of Nations.

As to the untoward symptoms of quinine, Mühlens (1937) found idiosyncrasy to quinine several times. He saw urticaria, edema of the skin and mucous membranes, hemorrhages in several cases, and one fatal case due to a hemorrhage from the nose and bowel. Richardson (1936) reported nine cases of amaurosis and ambylopia following quinine treatment. Faiguenbaum (1938) reported one case of agranulocytosis from quinine.

In regard to some erroneous ideas about untoward symptoms following atabrine treatment, it may be stated:

1. Liver damage has never been demonstrated.
2. Cyanosis has never been reported unless the drug was given with plasmochin.
3. No cases of agranulocytosis are in the literature.
4. Atabrine is not more expensive than quinine. A complete course of atabrine is available for $1.00. Quinine as recommended over a period of eight weeks costs approximately $2.00.

Other therapeutic uses of atabrine:

1. Blackwater fever: McNalb and Schwartz (1934) in the Philippines, Goldblatt (1935) in South Africa and Maldonado (1936) in Spain, treated patients with blackwater fever with intramuscular injections of atabrine, claiming good results. The mortality was reduced from 36 per cent to 10 per cent. The drug is given daily intramuscularly in amounts of 0.2 to 0.3 gram. When the symptoms cease, usually in 12 to 36 hours, treatment is continued by mouth. Thus far, we have had occasion to use atabrine in the treatment of blackwater fever only once. In this patient hemoglobinuria disappeared within 30 hours.
2. Giardiasis: In April, 1937, Brumpt reported the results of his experimental study on the effect of acridine dyes upon mice and rats infected with *Giardia lamblia*. A 1 per cent solution of the basic acridine dye cured 80 per cent of his animals. Shortly thereafter Galli-Valerio employed atabrine for the treatment of giardiasis. Since that time 22 authors throughout the world reported 414 cured out of 417 patients with giardiasis treated with atabrine.

CONCLUSIONS

1. The dosage of atabrine should be within the amounts advocated and should not be repeated within 30 days.

2. The incidence of psychosis can be greatly reduced if the dosage is kept within the normal limits. Atabrine should not be given to a patient with a previous history of psychic disorders.

3. The incidence of abdominal colic, nausea, vomiting, may be decreased by giving the atabrine with an abundance of food and water.

4. Atabrine should not be given together with plasmochin.

5. Intravenous use of atabrine is not recommended.

HUTCHINSON MEMORIAL CLINIC

Meeting of January 10, 1940.

Scientific Session conducted by the Department of Pediatrics, Dr. Robert A. Strong, presiding.

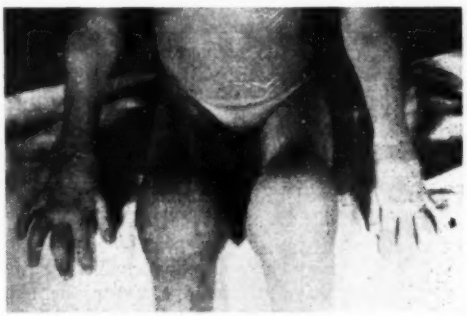
Introductory Remarks on Still's Disease (Dr. Robert A. Strong): I think that we are all agreed that the condition to which we broadly refer as the rheumatic state, prevails to a greater extent in the British Isles probably than in any other country. Naturally, investigative work to discover its possible cause has been carried on more extensively in England. In fact, two of the earliest workers to suggest that the streptococcus was the cause of rheumatic fever, were Poynton and Payne. Some of you may recall that it was about 25 years ago when these two workers reported their results from the Great Ormond Street Hospital for Sick Children, in London, and at the time and to some extent even now, their work is regarded as the nearest approach to a solution of the rheumatic problem. The organism which they described, however, failed to fulfill the requirements of specificity.

Many years before Poynton and Payne's work, George H. Still, of the Great Ormond Street Hospital, described a form of chronic joint disease in children, which had characteristics distinctly different from other forms of arthritis. These differences included hepatitis and a splenomegalia, and the joints were chronically swollen without any widespread evidence of acute inflammation, as it is elicited by conventional signs. On palpation, the enlarged joints are not as painful or tender as would be expected from their size and they have a "crunchy" feel and crackle when any attempts at movement are made. In addition, endocarditis very rarely, if ever, occurs.

During a stay in Great Ormond Street some years ago, I had the privilege of seeing a number of cases demonstrated by Still himself. Later, I saw a typical case in New Orleans, which I reported as a part of a discussion on joint enlargements from other causes (Pan-American Surgical and Medical Journal, 1:65-70, 1914). Since then, I have seen another typical case, which was under the care of Dr. McIlhenny. It was during the time that McIlhenny was treating rheumatic conditions with the esters of chaulmoogra oil. He did this because of the fact that in his extensive experience at the leprosarium at Carville, he had never seen arthritis in any form and he believed that the conventional treatment of leprosy with these esters might have been a factor in preventing it. McIlhenny's patient certainly improved during the several years which followed.

Williamson, who received a large part of her early training in the British Isles, and especially under John Thomson, in Edinburgh, has naturally had an opportunity to see a large number of these cases and she will present a case tonight.

Still's Disease (Dr. G. Richarda Williamson, Department of Pediatrics): In the land of my birth, we call this condition Still's disease, but in the land of my adoption, a more appropriate name would be Still's type of disease, a form of chronic joint disease in childhood. This type of rheumatoid arthritis in children was first described by Dramantberger, in 1891, and six years later, in 1897, the famous communication, "On a Form of Chronic Joint Disease in Children," by Still, was received. He described the triad: (1) Enlargement of the joints; (2) enlargement of the lymph glands, and (3) enlargement of the spleen. In his series of 22 cases, all showed one or more of these signs, 11 of them having splenomegalia, some having enlarged joints, and some showing only lymphadenopathy. He considered endocarditis rather the exception than the rule in these cases.



It occurs much more commonly in the British Isles than in America. In the twenty years that I have been in the United States, I have seen only three cases.

The disease occurs most commonly between two and five years of age; the youngest case reported was four months. Most authorities consider it to be of infectious origin, and it often follows pneumonia or some other acute illness. Various microorganisms of low grade virulence have been incriminated, the most commonly listed being the *Streptococcus viridans*.

It has been noted that heredity may possibly play a part, as a familial occurrence of the disease has been observed. Climatic conditions are also involved, for it occurs much more frequently in cold, damp climates. Forty-six per cent of Siberian children have had it.

It has been suggested that it may be a manifestation of attenuated tuberculosis; in fact, a form of tuberculous pseudo-rheumatism has been described by Poncet, in France. However, this form usually terminated in ankylosis or tuberculous arthritis. All the patients I have seen had negative Mantoux tests, although many of them showed ankylosis and resembled tuberculous joints.

There is periarticular fibrosis with thickening of the capsule and ligaments and the synovial membrane is vascular and swollen. In a joint opened by Whitman, the synovial membrane was described as being replaced by a soft, red granulation tissue. The cartilages are normal, but may present some pitting at the margins. The adjacent bone often shows rarefaction. Adhesions are often present in joints severely affected.

Pericardial and pleural adhesions may be present. None of the cases I have seen presented evidence of endocarditis, although Still reported two such cases, which, if part of the disease, is of rare occurrence. Amyloid disease of the spleen, liver, and kidneys has been noted in some few cases.

The onset may be acute, but more commonly develops insidiously after an acute illness. The first joints involved are generally the knees, wrists, and ankles, after which the swelling occurs, attacking practically all of the joints. The cervical spine, temporomandibular, sternoclavicular hip and shoulder are less frequently involved. The joints are usually swollen and fusiform in shape. They are never red, never suppurate, and an exudate seldom forms. The joints are usually symmetrically involved. There is pain only with motion. Other physical findings include muscular wasting to a degree greater than to be expected from disuse and contractures, swelling, erythema and glossy skin, slight exophthalmos, chronic fibrous pericarditis, and adhesive pleuritis. The growth of the patient tends to be retarded, but the mentality usually remains alert.

It is often characterized by periods of remission, where the patient regains his ability to walk and motion in the joints may take place without pain. A relapse usually occurs after a few weeks and bed rest becomes a necessity.

Other findings which may or may not be present, are subnormal basal metabolism, psychic changes, subcutaneous nodules (Heberden's nodes), and albuminuria. With regard to the last, in two cases reported by Portis, of Chicago, one died following uremia, and both had albuminuria. At autopsy, amyloid degeneration of the spleen, liver, and kidneys was found.

In my opinion, the prognosis is not good, although Thursfield states that it is better than is generally believed. Improvement was often noticed in Still's cases, after an attack of measles, scarlet fever, or jaundice. The fever accompanying these diseases may have been a factor. With the exception of this case, however, all that I have seen did poorly. The younger the patient at the onset of the disease, the more unfavorable is the prognosis. Death may supervene after the disease has worn on from three to 12 years. In the patients who do survive, the prognosis is excellent, for the return of function in the involved joints, and in many, the swelling disappears to a great extent.

Still's disease must be differentiated first from other forms of chronic arthritis, and this is often extremely difficult. Chronic periarticular fibrosis following acute rheumatic fever (Jaccoud's chronic rheumatism) must also be eliminated. Finally, the fusiform swelling of the fingers may be confused with either tuberculous or luetic dactylitis, because tuberculosis and syphilis involve the bone.

DESCRIPTION OF THE CASE

This patient has improved so much during his stay in the hospital that it is difficult to imagine the picture he presented on admission.

The history is vague. As far as could be determined, he has had swollen joints for about the past 12 months. No history of a preceding acute illness could be elicited, although it is my opinion that he probably had one. There are four brothers and five sisters, none of whom are known to have had the disease. On admission, he appeared emaciated and chronically ill, with markedly swollen, non-painful joints. Movement of the joints, however, produced rather severe pain. He sat quite still and when looking to either side, rotated his entire trunk, leaving the cervical vertebrae stationary. Examination revealed the following positive points: The cervical lymph glands were moderately and painlessly enlarged. The heart was enlarged, but no murmur or irregularity of rhythm was present. No dyspnea or edema was noted, and it cannot be explained why the cardiac enlargement existed. The spleen was palpable, but not excessively large. The finger, elbow, wrist, ankle, and knee joints were greatly swollen and fusiform in shape, but no redness or other signs of acute inflammation were present. Passive motion was present, but produced considerable pain. Upon palpation, a sensation of doughiness was noted, probably due to accumulation of fibrous tissue. As stated above, the cervical vertebrae were rigid.

At present he has regained the use of most of his joints, but the swelling is still present and the muscles of the forearms, arms, thighs, and legs, still show an extreme degree of atrophy. The red blood cell count was 3,800,000 and the hemoglobin 60 per cent, and the white blood cell count was 8,000, indicating a secondary anemia. Urinalysis was negative, and the sedimentation rate was accelerated. The Mantoux test was negative.

The treatment used so successfully in this case will be described by Dr. Levert.

Treatment of Case of Still's Disease (Dr. Edward Levert, Resident, Tulane Division of Pediatrics, Charity Hospital): Salicylates were first used in this case of Still's disease more or less as a theraupeutic test, and after being given for four or five days without result, were discontinued. It

was thought that typhoid vaccine could be given as a means of fever therapy, so from 10,000,000 to 30,000,000 killed typhoid bacteria were given every four days intravenously. The temperature rose to 104° F. Eight injections were given and instead of improving, the patient appeared worse.

Several years ago, C. I. Reed (Ph. D.) at the University of Illinois College of Medicine, observed improvement of two patients with arthritis, who were being treated for hay fever with vitamin D concentrate. He then reported a series of cases in 1935, in which 20 of 24 rheumatoid cases improved under this treatment. Doses of from 200,000 units to 600,000 units daily were given. The first sign of improvement in some was lessened pain, in others there was improvement in mobility, and in still others, reduction of edema. Nearly all patients showed improvement in nutritive condition, less evidence of vasomotor instability, greater muscular strength, less tendency to fatigue, and improved gastrointestinal function. These signs first appeared in from one week to six months.

Because of these observations, we decided to start this form of therapy on this patient, and so far, the improvement in his condition has been most satisfactory. He was started on daily doses of 50,000 units of vitamin D. Before this form of medication was begun, the sedimentation rate was 18 mm. in 18 minutes. After a period of 10 days, the dosage was increased to 100,000 units daily. Three weeks after starting this therapy, the sedimentation rate was 18 mm. in 44 minutes, and there were definite signs of improvement. There was increased motility in the joints, decreased swelling, and lessened pain. At the present time he is receiving 150,000 units daily and is still improving.

In a review of the literature, there appear to be approximately 185 patients treated in like manner, with 69.8 per cent improvement.

Most of the authors began on dosages of from 100,000 to 150,000 units daily, which they increased by 50,000 units daily every four to five days. When toxicity developed, the dosage was dropped by one to two hundred thousand. The conclusion was that they should receive at least 300,000 units daily (adult). Overdosage resulted in nausea, frequency, lassitude, anorexia, polydypsia, diarrhea, abdominal pain, and vomiting. Brewers' yeast gives relief in most cases, according to Dreifer and Reed.

Initial calcium and phosphorus are usually normal. Massive doses of vitamin D lower high serum calcium and raise low or normal serum calcium to a higher level and after continued administration, will again decrease the calcium level. Calcium level had no connection with improvement. Phosphorus is practically unchanged.

Most of the writers who concluded that vitamin D concentrate was of no value in the treatment of arthritis, gave doses of less than 150,000 units daily (adults).

The only other form of therapy that seems to be giving results as good as vitamin D appears to be gold salts. It has been used mainly in England. In a review of the literature, 1,537 persons are reported, with 54.1 per cent cured or improved. However, toxic effects in this form of therapy are frequent and serious.

In conclusion, I would like to say that while our patient is showing definite signs of improvement under vitamin D therapy, remissions are quite frequent in Still's disease. Also, at the time of starting this form of therapy, two carious teeth were removed. We think that before we can definitely conclude that the benefit is from vitamin D, we will have to observe him for a further period of time.

In Conclusion (Dr. R. A. Strong): I feel that from the appearance of this case, some of the internists will think that we are dealing with a case of rheumatoid arthritis, and I am not unmindful of the fact that in recent literature, the term Still's disease is not widely recognized.

I am sure that some of you may think that we are quite bold in using the large unitage of vitamin D, which Levert describes. We did this, however, with full cognizance that there is such a thing as hypervitaminosis. This was noted when irradiated ergosterol was first used in Continental Europe under the name vigantol and as acterol in this country. Certain toxic symptoms occurred in children and the use of these preparations was discontinued. Experimental work with rabbits was conducted and calcareous deposits in various organs, caused by hypercalcemia, were revealed in rabbits which were given huge doses of irradiated ergosterol. These experiments served to stabilize the human dose and it is now known that the conventional dose can be greatly exceeded without fear of causing hypervitaminosis.

Introductory Remarks on Hypertelorism (Dr. Robert A. Strong): Again we go to Edinburgh, where a condition was first described by Greig, in the Edinburgh Medical Journal, in 1924. We have seen four children with this condition, but I think the one who will be shown you tonight more nearly approaches in appearance the first case described by Greig. Little has appeared in the literature since Greig's first communication.

Hypertelorism (Dr. Richard P. Vieth, (read by Dr. Sam Powell) Department of Pediatrics): We are presenting these two cases as examples of a rather unusual condition known as ocular hypertelorism. It is a congenital, developmental, cranio-facial deformity characterized by widespread separation of the eyes. In its milder forms it is probably quite common among negroes, whose normally flatter bridge of the nose may make the eyes appear farther apart than normal. Milder forms of the condition present

no symptoms, but the marked degrees of hypertelorism, such as these patients present, are frequently associated with visual disturbances and mental deficiency.

CASE NO. 1

L. B., a 10 year old colored girl, was first seen in the clinic in May, 1939, complaining of vague abdominal pain of several months' duration. The pain was never severe; there was no nausea or vomiting. Before we could make a positive diagnosis of any abdominal condition, the pains disappeared spontaneously and she has had no more distress. At the time of admission, the patient's mother also stated that the child had difficulty with reading, that she holds her head to one side in bird-like fashion, and seems to use her right eye more than the other.

In the family history, it is of interest that the patient's maternal aunt was supposed to have had a facial deformity, with widespread eyes. There is also a definite suggestion of hypertelorism in the mother. The past history is negative, except for the usual childhood diseases. The patient appears to be of at least average intelligence, although a psychometric examination has not been done. She is in the fifth grade in school, a grade which is in keeping with her age.

Physical examination reveals a well developed, moderately well nourished 10 year old colored girl. All positive points in the physical examination are limited to the head and face. The most striking feature about this patient is the malformation of her face. The forehead is low, with prominent frontal eminences, the left brow being more prominent than the right. The orbits are large and widely separated, the palpebral fissures narrow and almond shaped. The bridge of the nose is wide and flat, with a distance of 50 mm. between the inner canthi. The nostrils are widely separated and flaring, with a slight dorsal groove, which seems to bisect the nose.

Measurements of the skull give a cephalic index of 76.4, which makes the skull mesaticephalic in type. In this respect she differs from the usual case of hypertelorism, in which the brachycephalic skull is the rule. The laboratory data are all negative. X-rays of the skull showed "slight degree of convolutional atrophy with a large sella turcica."

CASE NO. 2

S. S., a four year old colored girl, shows in addition to the cranio-facial deformity, marked mental deficiency. This patient came to the Clinic because of weakness and failure to walk or talk. She was apparently normal at birth, from the history, but at the age of one year it was noted that she was weaker than would be expected for that age and did not attempt to sit up, walk, or talk. At the present time, she is markedly spastic, drools saliva, and is definitely retarded mentally.

Laboratory data and x-rays of the skull are negative. As in the case of the first patient, she presents the wide space between the eyes, the distance between inner canthi being 35 mm.

The credit for establishing this condition as a definite clinical entity and for proposing the name "ocular hypertelorism," belongs to Greig, of Edinburgh. In 1924, he described two patients he had observed over a period of several years. One of his patients died of tuberculosis and he was able to make an exhaustive study of the macerated skull. He states that the most striking features of the skull are: (1) The enormous breadth of the anterior nares, the opening being quadrilateral instead of pyriform; (2) the great breadth of the cribriform plate, and (3) the small size of the great wings of the sphenoid, with a disproportionate largeness of the small wings.

Before Greig, cases whose illustrations seem to present hypertelorism were described as oxycephaly. However, the characteristic feature of oxycephaly is the lack of formation of the sutures throughout the skull, whereas in hypertelorism, all the sutures are present, well formed, and the deformation of the cranial cavities in no way corresponds to oxycephaly.

According to Reilly, there are possibly four different forms of this syndrome: (1) Facies only; (2) facies and mental deficiency without familial tendency; (3) facies and familial tendency without mental deficiency, and (4) facies and mental deficiency and familial tendency.

A case of hypertelorism will be recognized at birth because of the peculiar facies. The face appears small, the cranium large, the nose has a broad bridge and is generally retroussé. The eyes have their horizontal axes directed laterally and strabismus, usually external, unilateral or bilateral, is the rule. While the height and circumference are usually normal, the skull length is shortened and the occiput flat, giving a brachycephalic type.

Physical development may be normal or retarded. Mental deficiency may or may not be present and other deformities may be found, such as syndactylism, high palate, undescended testes, acrocyanosis, impairment of visual acuity, partial or total blindness without optic atrophy.

X-ray examination revealed the wide separation of the orbits and large anterior nares. Intersutural bones may be present or the sutures incomplete with absence of digitations.

Hypertelorism is the result of a developmental anomaly of the sphenoid bone. Dr. Cummins has kindly consented to discuss this condition from the standpoint of embryology.

Discussion (Dr. Harold Cummins, Department of Anatomy): The developmental history of hypertelorism: The external anatomic characteristics of hypertelorism include the wide setting apart of the eyes, a broadened nose, which in the most extreme cases may present a median furrow dividing its right and left halves, as well as other less conspicuous departures from the average normal

conformation of the face and cranial vault. The skull shows corresponding deviations from normal, the orbital fossae being widely separated, with marked widening of the nasal aperture, nasal bones, and cribriform plate. These and other abnormalities of the skull might be considered in detail, but for the present purpose it is necessary only to state that the whole picture, the nature of which I have been asked to discuss, is one of developmental arrest.

Only recently recognized as a pathologic entity (Greig, 1924), hypertelorism has not yet received the attention which it merits from the standpoint of congenital history. Certainly it is questionable to attribute this abnormality, as Greig and Washington (1936) have done, to a defect in the fetal cartilage anlage of the sphenoid bone. While the sphenoid is clearly abnormal, its role is not that of an initiator of defect, but instead it is merely a participant in a complex of defective processes which undoubtedly are in action before the cartilaginous elements of the sphenoid have been formed. If some cephalic structure must be singled out as the prime mover, it would be more reasonable to give first claim to the brain, together with the eyes, which develop in part from it, and still more to the point, is emphasis of the fact that the combined maldevelopments are the end result of mutual inter-regulation of all the differentiating head structures. In any event, no such descriptive explanation represents truly the etiology of hypertelorism, which in different cases may prove to involve either hereditary factors or disfavoring influences in early embryonic development which, according to the time of their effects on the embryo might as readily have led to other varieties of malformation, as they actually do when, as in some cases, other abnormalities occur in combination with hypertelorism.

These illustrations of the faces of embryos of five, six, and eight weeks may enlighten the embryologic background of hypertelorism. In embryos of five and six weeks, the eyes are directed laterally, and the several separate processes which are to unite in the construction of the face are clearly defined. The embryo at eight weeks shows the eyes in a more anterior position, yet still widely removed from each other, and while the originally separate processes of the face are now merged, it will be noted that the duplex origin of the nose is still evidenced. In embryonic mold, this is the face of a severe degree of hypertelorism. Consider the effect of interrupted differentiation at this stage, the head continuing to grow, but with the further steps in normal transformation of the face being halted. It is clear that arrested differentiation in the early prenatal history of these cases is the immediate developmental explanation of their origin, the severity of affection varying according to the period at which interference with normal behavior of the differentiating head structures is introduced. In any arrested superficial differentiation the concurrently developing deep structures would be affected likewise, the face being chosen for illustration because of its simplicity. Though more grave in its consequences, particularly in the severe cases where cerebral and ocular involvements lead to serious functional impairment, the arrest which occurs in hypertelorism is in principle no different from the regionally more limited arrests which give rise to other unfinished structural relationships such as harelip and cleft palate.

Introductory Remarks on Diabetes Insipidus Following Brain Abscess (Dr. Robert A. Strong): I think that anyone who has attempted to fathom the function of the pituitary gland has realized that it is a very difficult thing to do. Situated as it is, almost within the sella turcica, and intimately related with important structures of the brain, which either form a part of it or lie immediately adjacent to it, its function has been found to be multiple and complex. Its anterior lobe functions altogether differently from the posterior lobe. Whenever its function is impaired in part or as a whole, varied conditions may develop. For this reason, I think that the case which will be presented to you by Dr. Russ will be especially interesting.

Diabetes Insipidus Following Brain Abscess (Dr. J. D. Russ, Department of Pediatrics): The history of this patient will give the best idea of the etiology of the case, which is unusual. This boy is 12 years old, and his outstanding complaints were lethargy, indifference, excessive polydypsia, excessive and extremely frequent polyuria, obesity, and failure to grow.

He is the second child in his family; birth history and feeding habits are normal. He held his head up at two months, sat up at five months, talked and walked at one year. He had smallpox, diphtheria, and whooping cough during his first five years, and in June, 1932, when he was seven years old, he had measles. One month after his attack of measles he had a severe upper respiratory infection, which developed into an otitis media (left) and several days later an acute mastoiditis appeared. Mastoidectomy was performed and convalescence was somewhat stormy until two months later, when a temperature of 105°, plus acute pain over the right lateral malleolus, was observed. An operation for acute osteomyelitis was performed. Convalescence was uneventful.

One year later, in July, 1933, otitis media and mastoiditis again appeared and after another mastoidectomy, another osteomyelitis occurred, this time in the left fibula. Osteotomy was performed and convalescence was rapid. One year later, in June, 1934, another mastoiditis in the same mastoid occurred and mastoidectomy again was performed.

In February, 1935, eight months after the mastoidectomy, the child suddenly complained of acute frontal headache, his temperature began to rise until it reached 106°, and a septic type of fever

followed; convulsions appeared, as did delirium, coma, and cephalic hyperextension. He was rushed to the hospital and a diagnosis of left mastoiditis and brain abscess was made. Mastoidectomy was performed and the abscess drained. After a stormy course of two months, the child became quite well and was discharged. In the next few months the parents noticed that the child was becoming much fatter, although his appetite was poor and that he drank increasingly excessive amounts of water, accompanied by excessive urination. He also failed to grow. Enuresis, of four to six times nightly, occurred for the first time in the boy's life. This condition persisted with no alleviation until 1938, when the mother took him to Touro Infirmary. Here a diagnosis was made of pituitary deficiency, and the boy was put on antuitrin-G and thyroid. He lost 12 pounds, but failed to grow. He was then changed to antuitrin-S, and proceeded to grow three and a half inches in six months. No change in the excessive urination was seen. Pitressin was given, but the boy had severe vomiting with each injection and the drug had to be discontinued. For some reason, the mother discontinued treatment early in 1939, and was not seen again by a physician until the present admission to this Clinic.

The only important point in his family history is that the mother is short (four feet, ten and a half inches), and the father is also smaller than normal (five feet, five inches). Numerous cousins are shorter than normal.

The patient was admitted to the Clinic on November 13, 1939. Any improvement in the boy's condition had stopped abruptly upon cessation of treatment early in 1939. Increasing lethargy and sleepiness had been noted, particularly in the past four months. He slept whenever possible, and was unable to maintain passing grades in school because he was too sleepy to study. At that time he was going to sleep regularly at 7 p. m. and was awakened with difficulty at 7 a. m. Polydypsia had become increasingly severe and frequent, as had the polyuria. When he was awakened in the morning, his first act was to drink from 2,000 to 3,000 c. c. of water. His total daily intake varied from 30,000 to 34,000 c. c. of fluid and his normal output was from 26,000 to 30,000 c. c. He wet the bed as much as 12 times a night and the bed clothes were changed without being able to awaken the boy. His height had remained unchanged in the past year and he had regained the 12 pounds, and at that time was fatter than before.

The boy sits quietly in his chair and answers questions intelligently and cooperatively. He submits to all examinations stolidly. A physical examination reveals that his height is 49¼ inches and his weight, 65½ pounds. He has a blood pressure of 112/80; basic pulse rate at rest, 68; and temperature 98.4°. His head is normal in contour and the hair is plentiful, but coarse and dry. An ophthalmologic examination reveals normal fundi. There are large scars posterior to the left pinna over the left mastoid, and deafness is present in the left ear. His hearing is normal in the right ear. A tonsillectomy has been performed. His oral hygiene is excellent. The heart is normal in size and shape, regular in rate and rhythm, and there are no murmurs. The lungs are clear and resonant, with no rales and no abnormalities of breath sounds.

The child is excessively obese and there are rolls of fat over the lower abdomen and over the crest of both ilia. An overhanging roll of fat is over the penis. There are no areas of pain, tenderness, or rigidity, and no palpable organs or masses. The penis is very small, being about the size seen in a normal three year old boy. The scrotum is also very small, with masses of fat held within it. The boy has a pseudo-cryptorchidism. The testes are felt at times in the scrotum and at other times are palpable in the lower portions of the inguinal canals. The upper thighs are very fat. A long scar is present over the lateral aspect of the left leg and a small scar over the lateral aspect of the right malleolus. His reflexes are normal and no abdominal reflexes are present. X-ray of this patient reveals normal sella turcica, and a bone developmental age of seven years.

The boy was put on whole pituitary extract, gr. 6 by mouth and thyroid extract, gr. 1, twice a day. In eight weeks, January 10, 1940, the boy has attained a height of 49¾ inches, having gained half an inch, and a weight of 58½ pounds, which shows a loss of seven pounds. His noticeable obesity has disappeared, and he is now no longer sleepy, but plays well and long, and his school grades are markedly improved. There has been no change in the polydypsia or polyuria. His blood pressure is now 105/70 and his basic pulse at rest is 90.

Introductory Remarks to Lead Encephalopathy (Dr. Robert A. Strong): We have presented a case of lead poisoning at a former staff meeting, because we have had several in our clinic, but I offer no apology for presenting another one. Attention cannot be called to this condition too often, because the diagnosis is usually made when we are "lead conscious." Lead poisoning is either on the increase or it is being recognized more frequently than formerly. Since the roentgenogram has been an aid in diagnosis, suspicions can be confirmed more readily. Formerly, lead poisoning was more frequently met in those whose occupation requires them to be constantly exposed to lead. In recent years, however, this has not been the case. Lead poisoning may be acquired by inhalation as well as by ingestion. Very recently (Jephcott, C. M.: Canad. Pub. Health J., 28:391, 1937; Ruff, H. W. and Fluck, W. Z.: Am. J. Pub. Health, 29: 1149, 1939) some shades of colored chalks used in school rooms have been discovered as being capable of causing lead poisoning by the dust which emanates from them. The yellow, orange, and green colors were found to contain large amounts of lead chromate. Again, eight years ago in Balti-

more, a great many negroes suffered from lead poisoning as a direct result of burning discarded automobile battery boxes, which they collected from the city. More than 26 cases of poisoning from similar sources were reported from Nashville, Tennessee, a few years later.

Lead encephalopathy has been recognized for many years, but facilities exist today by which it can be more easily diagnosed, and Dr. Rodriquez will now present a case of this condition.

Lead Encephalopathy (Dr. Adrian Rodriquez-Macedo, Department of Pediatrics): This two year old colored male was admitted on April 27, 1939, with a chief complaint of convulsions three times a day for the past two months. The onset was sudden, the patient falling and occasionally hurting himself. They occurred two or three times daily, were of moderate severity, and sometimes left the patient rather dazed. Although the convulsions were generalized, there was often a residual limp of the right leg.

The family history and past history were essentially irrelevant.

Examination revealed a well developed, well nourished boy, who, although not acutely ill, appeared lethargic, and was constantly in a knee-chest position. The temperature on admission was 101°, but was normal the next morning. The only other finding was evidence of a very mild respiratory infection.

The laboratory work revealed nothing significant, except for some increase in the spinal fluid pressure. The calcium was 9.5 mg. X-rays of the skull and long bones were reported as showing no bone pathology and no pressure defects.

Neurologic consultation stated "No significant findings except for an apparent preference for the prone position, with the knees flexed. Impression: convulsive state—nature at present undetermined." The child had an uneventful course in the hospital and was discharged eight days after admission.

We saw him on August 26, 1939, when he was readmitted to the Ward in a semicomatose condition. The mother stated that for the past month, he had been having mild convulsions and twitchings of the right side, but until the present time, these have not been severe enough to require hospitalization.

The intern's note at this admission reads as follows: "Patient apparently comatose, although breathing at normal rate. The eyes are deviated to the left with a slight horizontal nystagmus. The pharynx is slightly red; gums in good condition. Reflexes: physiologic on the left side. On the right, the arm and leg are flaccid, and show a diminution of all tendon reflexes. Abdominal and cremasterics absent. Babinski positive."

Laboratory work at this admission showed 3,900,000 red blood cells, hemoglobin 65 per cent, 10,800 white blood cells. Spinal fluid was under increased pressure, but negative for globulin, and the cell count was not increased. The urinalysis was negative. The Mantoux test was negative.

In spite of large doses of sedatives, the child continued to have mild convulsions and twitchings of the right side, and at times of both sides. The eyes deviated to the right on one occasion and to the left on another. Incontinence of urine and feces was noted.

During this time, the neurologic department was again consulted and an encephalogram was advised. Before this could be done, however, the possibility of lead poisoning was thought of, x-rays of the long bones were taken, and heavy deposits of lead were seen at the ends of the diaphyses.

The mother was then questioned as to the possible sources of lead and very readily admitted that the boy had been chewing on anything that he could get hold of since he had been able to chew. This included painted toys, cheap yellow pencils, and possibly the paint off the front porch. No other possible source of lead could be elicited, and x-rays of the patient's little sister were entirely negative.

The child was put on a diet of adequate calcium content, supplemented by viosterol, and 10 c. c. of a 10 per cent solution of disodium phosphate was given orally three times a day. The sedatives were discontinued, the patient observed for two weeks longer and then discharged.

He failed to follow the regimen advised, and returned to us a month later with the complaint that the convulsions had not entirely ceased. However, after five days' observation in the ward, he had no convulsions, and the only findings were an exaggeration of the tendon reflexes of the right lower extremity, very occasional stippling of the red blood cells, and slight anemia.

He was discharged to the outpatient clinic only to be readmitted a few days ago because the convulsions had recurred. He has had only one convulsion since admission. This was of moderate intensity and generalized.

I believe that this case shows us most of the signs and symptoms that characterize lead poisoning in children. First, we see it occurring at the age of most rapid dentition (one to two years) and that at which there is the greatest tendency to put things in the mouth. Secondly, we see that the source differs somewhat from the usual source in adults; and thirdly, that the child responds violently with an encephalopathy instead of a peripheral neuritis, although both conditions might occur. A respiratory infection or an acidosis is the usual precipitating factor. Furthermore, he showed most of the symptoms, such as restlessness, irritability, convulsions, stupor, coma, vomiting, periodic anorexia, constipation, diarrhea, and apparently abdominal cramps.

You might be surprised to hear that the lead lines on the gums and stippling of the red blood cells so frequently observed in adults, were not found in this patient. However, this is rarely found in children, according to McKhann, Vogt, and other observers.

Diagnosis is made on x-ray, by the heavy bands of increased density at the growing ends of the long bones and the margins of the flat bones. This picture is most often confused with that of healing rickets, although in the latter, other evidences of the disease are usually present. Somewhat similar lines might also be seen in cases of arrested growth, vitamin A deficiency, or after the ingestion of bismuth, strontium, or phosphorus.

It should be kept in mind that as in our patient's first admission, if the pictures are taken while the lead is still circulating in the blood stream, and not yet deposited in the bones, the x-rays might appear perfectly normal. At such a time, a spectroscopic examination of the blood would establish the diagnosis.

Analysis of the stools and especially of the urine is also of value, but only if a quantitative determination is made, as 0.1 mg. of lead per liter is often found in normal urine.

Lastly, the patient presents, I believe, the prognosis of a great many children who survive lead encephalopathy; that is, the suggestion of cerebral injury of a permanent nature. This is easily understood, for at autopsy, the brain appears markedly swollen. Permanent damage might result from pressure effects and interference with circulation, or possibly from a specific toxic effect.

The question of treatment remains unsettled, but following the work of Schelling, and later Kramer, Levinson, and others, the patient was given a liberal amount of milk, viosterol, and disodium phosphate. The most widely used treatment today, is not that, but one consisting of high calcium in addition to large quantities of milk. This follows the work of Aub and his co-workers, who pointed out that lead is absorbed, transported, and excreted, much as is calcium, so that, in general, factors which influence calcium metabolism, might be expected to have an influence on lead. Schelling, however, found that calcium not only did not relieve the symptoms in rats, but aggravated them. Apparently the excess of calcium combines with phosphates in the intestinal tract to form insoluble calcium phosphate, and the fetal loss of phosphorus is increased. The blood serum is thus deprived of soluble phosphates necessary to precipitate the soluble lead iron and facilitate its deposition in bone or its elimination as insoluble lead phosphates. Schelling attributed Aub's success in cases of acute lead poisoning to the fact that he used large quantities of milk, which, besides calcium, contain an abundance of phosphorus.

In addition to the specific treatment, general anticonvulsive measures should be instituted, large doses of sedatives may be administered by vein, rectum, or orally. Hypertonic glucose intravenously is also of benefit. Magnesium sulphate, although advocated in many textbooks, I believe should not be used in cases of lead poisoning. Schelling has shown that it increases the toxicity of experimental animals and others have shown that magnesium hinders calcification probably by increasing solubility of insoluble phosphorus compounds.

I have not mentioned deleading, as it is agreed by most clinicians that it is dangerous in acute cases of lead intoxication, as it may release the lead from the tissues into the blood and cause severe symptoms of intoxication and even death. Danger of recurrence of symptoms of lead poisoning gradually subsides, due to the spontaneous elimination of the metal.

In conclusion, I might say that lead encephalopathy is only going to be diagnosed by those who keep the possibility in mind in all cases of convulsions.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

February 1. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
Clinico-pathologic Conference, Hotel Dieu, 8:15 p. m.

February 7. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.
Hutchinson Memorial Clinic Staff, 8 p. m.
Mercy Hospital Staff, 8 p. m.

February 8. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
Board of Directors, Orleans Parish Medical Society, 8 p. m.

February 12. Orleans Parish Medical Society, 8 p. m.

February 13. Eye, Ear, Nose and Throat Society, 8 p. m.

February 14. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.
Touro Infirmary Staff, 8 p. m.

February 16. I. C. R. R. Hospital Staff, 12 noon.
New Orleans Dispensary for Women and Children Staff, 8 p. m.

February 19. Hotel Dieu Staff, 8 p. m.

February 20. Charity Hospital Medical Staff, 8 p. m.

February 21. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.
Charity Hospital Surgical Staff, 8 p. m.

February 23. L. S. U. Faculty Club, 8 p. m.

February 27. Baptist Hospital Staff, 8 p. m.

February 28. Clinico-pathologic Conference, Charity Hospital and L. S. U. Medical Center, 2 p. m.
French Hospital Staff, 8 p. m.

February 29. Joint meeting of The Orleans Parish Medical Society and The New Orleans Graduate Medical Assembly, 8 p. m.

During the month of January, the Society held its annual Installation Meeting and one scientific meeting. At the Installation Meeting held January 8, the following program was presented:

Invocation—Rev. Girault M. Jones, Rector
St. Andrew's Episcopal Church.

The Cooperative Movement:
Theodore W. Bethea, Attorney at Law.

Address of Retiring President:
Dr. Cassius L. Peacock.

Address of President-Elect:
Dr. Gilbert C. Anderson.

Installation of Officers, 1940

Dr. Gilbert C. Anderson.....President
Dr. Edmund L. Leckert.....First Vice-President
Dr. Andrew V. Friedrichs....Second Vice-President
Dr. Daniel J. Murphy.....Third Vice-President
Dr. Edwin L. Zander.....Secretary
Dr. Edwin H. Lawson.....Treasurer
Dr. Donovan C. Browne.....Librarian

Additional Members Board of Directors
Dr. Henry B. Alsobrook
Dr. Max M. Green
Dr. Cassius L. Peacock

Dr. Zander presented flowers to Mrs. Anderson.

A very nice reception followed the meeting. This was in charge of the Woman's Auxiliary to The Orleans Parish Medical Society.

The following program was presented at the scientific meeting held Monday, January 22:

SYMPOSIUM ON PNEUMONIA

Pathology of Pneumonia: Dr. Andrew V. Friedrichs.

Diagnosis of Lobar Pneumonia: Dr. Chaillé Jamison.

The X-ray Diagnosis of Pneumonia: Dr. M. D. Teitelbaum.

The Specific Treatment of Pneumococcal Pneumonia: Dr. J. O. Weilbaecher, Jr.

Annual reports for 1939 of officers and committees were presented at this meeting.

Drs. John P. Leake and Henry J. Otto were elected to Honorary Membership.

The following doctors were elected to Active Membership: Drs. Joseph A. Estopinal, Paul L. Marks and Robert S. Munger.

NEWS ITEMS

Dr. Morell W. Miller presented an address before the Allen Parent-Teacher Association on January 9. His subject was, "Tuberculosis in Relation to the Health of Today's Children."

Drs. C. Grenes Cole, Nicholas K. Edrington and Paul T. Talbot attended the annual meeting of the St. Tammany Parish Medical Society on Thursday, January 4, in the interest of the Louisiana State Medical Society.

Newly elected officers of the Hotel Dieu Staff were installed at a dinner held Monday, January 15. These officers are Dr. Lucien A. LeDoux, president; Dr. Daniel J. Murphy, vice-president; Dr. C. E. Gorman, secretary-treasurer. Members of the executive committee of the staff are Dr. LeDoux, Chairman; Dr. Murphy, vice-chairman; Dr. Gorman, secretary-treasurer; Drs. C. Grenes Cole, George J. Taquino, William A Gillaspie, Monte F. Meyer, Pressley A. Kibbe, Cuthbert J. Brown, Louis A. Monte and Edwin A. Socola.

The following officers of the Mercy Hospital Staff for 1940 were installed at the annual dinner held January 9: Dr. Ramon A. Oriol, president; Dr. H. Ashton Thomas, vice-president; Dr. Percy A. Phillips, secretary; Dr. Christopher F. Bellone, treasurer; and Drs. John J. Irwin and Theodore F. Kirn, members of the board of directors. Dr. Irwin is retiring president.

Sir James Purves Stewart, well-known British neurologist and writer, visited New Orleans on January 8 and 9. He had just completed a series of lectures in South America and stopped here on his way to London by way of New York. He addressed the students and faculty of the Tulane University School of Medicine on "Euthanasia."

Dr. Edward Churchill, John Homans Professor of Surgery at Harvard University Medical School was the guest speaker at the annual meeting of the Stars and Bars Chapter of Alpha Omega Alpha at the Hutchinson Memorial on Monday, January 15.

TREASURER'S REPORT

Actual book balance 11-30-39	$3,625.51
December credits	$2,035.27
Total credits	$5,660.78
December expenditures	$1,561.29
Actual book balance 12-31-39	$4,099.49

LIBRARIAN'S REPORT

In connection with the December report, a summary of the work of the Library is given for purposes of comparison. The Library has loaned to doctors during December, 772 books and journals, with an additional 886 items to students for overnight use, bringing the total for the month to 1,658. It is interesting to note that for the year 1939, 11,648 books and journals have been loaned to doctors, approximately two books a month to each active member of the Society. This total is 981 more than the number of items loaned to physicians in 1938 and 2,371 more than the circulation to physicians in 1937. The circulation to students for 1939 totals an additional 9,462, bringing the total number of books loaned during the year to 21,110.

The Library has been increased by 80 volumes during December, of which 50 were received by binding, 11 by gift, 16 by subscription and 3 from the New Orleans Medical and Surgical Journal. A notation of new titles of recent date is given below. For the year, 1,114 volumes have been added to the collection bringing the total number of books in the Library on December 31 to 24,236. Of the volumes added during the year, 433 were received by binding, 517 by gift, 35 by subscription and 129 from the New Orleans Medical and Surgical Journal. The Library received by subscription and gift more than 250 medical journals.

The reference service given by members of the staff of this Library to the profession is worthy of particular mention, since this is a field entirely omitted in many medical libraries, doctors being required to gather all their own references. Our Library staff during 1939 has collected material on 105 different subjects, at the particular request of physicians; all of this in addition to calls for specific titles and for needs which could be filled at once by books and by use of the card catalogue.

The out-of-town membership in the Library, established late in 1938, is still more than maintaining itself without cost to the society. Seventeen physicians have availed themselves of this extension service, and sufficient supplies are on hand to carry the service through 1940. For use in this work a collection of over 10,000 reprints and pamphlets, of dates ranging from 1930-39, has been indexed and filed for immediate use. This file of recent reprints is being enlarged as rapidly as possible and the reprints and unbound duplicate journals are used almost exclusively for out-of-town loans. In this way, carriage charges on the package libraries are kept at a minimum and at the same time our bound journal files are retained in the library for the use of members of the Society.

Miss Marshall represented your Library at the annual session of the Medical Library Association in June, for the thirteenth consecutive year, and was made Chairman of the Executive Committee of the Association. Representation at these meetings enables us to establish interlibrary relations of inestimable value to our own Library.

NEW BOOKS

Hamblen, E. C.: Endocrine Gynecology, 1939.

Faust, E. C.: Human Helminthology, 1939.

Johnston, T. B.: Synopsis of Regional Anatomy, 1939.

Osaka Imperial University: Collected Papers, 1938.

Association of American Physicians: Transactions, 1937.

Edwin L. Zander, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

New Orleans Graduate Medical Assembly	February 26-29, 1940	New Orleans
Louisiana State Medical Society	April 22-24, 1940	New Orleans

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Bi-Parish	First Wednesday in March	Jackson
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	

THE PRESIDENT'S LETTER

Dear Members:

The editor has requested that there be a monthly letter in the Journal from the president, so if you should tire of seeing a letter each month, either blame it on the editor, or, as the other alternative, turn the page. I shall attempt to make the letter a monthly affair, until either there are sufficient requests to stop, or the editor refuses to put them in the Journal.

On December 18, I went to the neighboring parish, Avoyelles, to attend their regular monthly meeting. Dr. Goldberg, of New Orleans, spoke on "Some Common Problems in Urology," and made a most interesting talk. The president was called upon to make a few remarks, and could not help but recall that at almost every program he has heard within the past ten years, some phase of urology was discussed. Either the profession is becoming more "urology conscious" or there is a concerted effort on the part of urologists to educate the profession in urology. There could be worse things to happen to both practitioners and urologists than for all to become better posted about the developments in this specialty.

I want to call the attention of the Society to the Avoyelles Society, and especially to the attention of the smaller societies. This society has been in continuous existence for over 50 years, and has contributed one President of the State Society, Dr. C. J. Ducote, and many other valuable workers. The Councilor for the Eighth District is Dr. Walter Couvillion, of Marksville. The membership consists of 19 men, all general practitioners, and all active. The meetings are held quarterly, at the home of a member, and the members are entertained with a supper. The people of Avoyelles are largely Creole, and are probably the best cooks in the world; at least that is my opinion, and the suppers are something one will always remember. Should one get an invitation to visit the Avoyelles Society, go by all means. There is another remarkable fact: Dr. R. G. Ducote, of Bordelonville, did not miss a meeting of the society for 20 years, a most remarkable feat for one so busy as he, and doing general practice. Dr. Ducote is President of the Eighth District Medical Society, and is going to entertain that society at his home in March.

On December 20, the ladies of the Auxiliary to the Rapides Parish Society entertained their husbands at a Christmas party. I was asked to act as Santa Claus, and with reinforcements, such as pillows and false face, made a fair imitation of the genial saint, and distributed the presents. I hope that the other societies are blessed with an active and interested Woman's Auxiliary as we have in Rapides.

On January 8, we held the regular Founders' Day Banquet of the Rapides Medical Society, honoring the men who started our present society. This society has been in existence for almost 50 years, and there are three living charter members, two still in active practice in Alexandria. The ladies were invited and made the affair doubly enjoyable. Dr. O. W. Bethea, of New Orleans, was the guest speaker, or orator, and chose for his subject "The Sixth Wonder, or Why Do Women Marry Doctors?" Every one who knows Dr. Bethea is well acquainted with his forensic ability, and it goes without saying, that every one thoroughly enjoyed his talk. To me, it was almost like again being in his class at Tulane.

It was with regret that I was not able to attend the annual banquet of the St. Tammany Society, held on January 4, but there was an extra number of babies due in my practice at the time, and I was unable to be away during that week. It has been my plan to visit as many of the component societies as possible, but as my practice is that of a "country doctor," often there are patients who keep me at home. It is necessary to attend to my practice, or the wife and children might have to go on relief.

On January 12, I had a letter from Dr. M. D. Hargrove, of Shreveport, Chairman of the Committee appointed by the Executive Committee to smoothe out the plans submitted by the Committee on Venereal Disease, enclosing a copy of the present plan to be submitted to the Executive Committee for final action. Dr. Hargrove's committee stress that final decisions as to whom shall receive free treatment shall be up to the members of the parish society where the work is being done—as is should be, in my opinion.

January 16 was election day, and the duties of citizenship were attended to, voting for the men that I thought best qualified for the offices for which they were aspiring. Voting is practically all the political activities that your president indulges in.

With best wishes, and hoping to see every member in New Orleans in April,

Sincerely,

D. B. Barber, M. D.

THE ANNUAL MEETING

The annual meeting of the Louisiana State Medical Society will be held in New Orleans, the medical center of the South, April 22-24, 1940. Dr. H. Ashton Thomas has been appointed Chairman of the Committee on Arrangements. He has gathered an excellent staff of co-workers, who together with him will leave no stone unturned to make this meeting one of the best ever held in the history of the Louisiana State Medical Society.

The program chairmen have been fortunate in selecting an excellent group of prominent speakers who will present papers of scientific interest. The scientific exhibits will be of exceptionally high order. The various subcommittees on arrangements are working diligently toward making the stay of the visiting physician a most enjoyable one, both scientifically and socially.

The social program will be only as New Orleans can arrange one. All members should plan to come to the medical center of the South, America's Most Interesting City. The ladies are cordially invited—the local Women's Auxiliary is expecting them. Come early for the meeting. A hearty welcome is assured all visitors.

Lawrence H. Strug, M. D., Chairman,
Publicity Committee.

OUACHITA PARISH MEDICAL SOCIETY

The regular monthly meeting was called to order at 7:45 p. m. by Dr. D. T. Milam, President. The minutes of the meeting of December 14, 1939, were read and Dr. Gray moved that the minutes not be adopted until the question of a delegate was settled.

Scientific Session: Dr. D. M. Moore presented a paper, "The Chronic Abdomen," which was profusely illustrated with lantern slides.

Dr. Frank A. Wood presented a paper, "Recent Advances in the Treatment of Burns," which was discussed by Dr. J. Q. Graves.

The President then declared that there was a vacancy for a delegate and alternate for 1940-41 and that nominations were open. Dr. Hamilton nominated Dr. G. W. Wright; seconded by Dr. J. Q. Graves. Dr. Titche moved that nominations be closed; seconded by Dr. Graves. Dr. Gray nominated Dr. W. E. Jones as alternate; seconded by Dr. Hamilton. Dr. Graves moved that nominations be closed; seconded by Dr. Hamilton. Dr. Moore moved that the secretary be instructed to cast a unanimous ballot for Drs. Wright and Jones; seconded by Dr. Graves and passed without a dissenting vote. Dr. G. W. Wright was declared delegate for 1940-41 with Dr. W. E. Jones as alternate. The other delegates are Dr. F. C. Bennett, with Dr. D. M. Moore as alternate, for 1939-40 and Dr. John Snelling, with Dr. M. W. Hunter as alternate, for 1940-41.

Dr. Gray suggested that the secretary be instructed to have copies of the constitution and by-laws of the society made and sent to each member; he also suggested that a better way of keeping records be found. Dr. Milam suggested that a file be made of each member which should contain all pertinent data, such as number of meetings attended, papers presented and honors received. A resumé of each member should be prepared by himself, and this should be supplemented from time to time by the secretary.

Dr. Milam announced that he would appoint his various committees within the next few days and that members would be notified prior to the next meeting.

The question of new members was then brought up. Dr. Gray moved that, in view of no negative report by the membership committee, the applications of Drs. Frost and Smith be voted on by the society. A secret ballot was taken and neither one received a dissenting vote. Drs. W. L. Smith and Russell H. Frost were declared members of the society.

A letter from the Louisiana State Medical Society asking for a list of physicians whose practice was confined to internal medicine was read and those physicians were asked to notify the secretary of their names.

Dr. Gray moved that the minutes of the meeting of December 14, 1939, be adopted; this was seconded by Dr. Moore and passed.

Dr. Graves announced the death of Dr. J. C. Sartor of Rayville this afternoon and moved that the secretary be instructed to write a letter of sympathy to the family; seconded and passed.

Dr. Gray reported that the Farm Security Administration has raised the minimum to $14 a year for each family, as requested by the society, and that the committee reports favorably and has accepted the plan. Dr. Moore moved that the report be accepted and the society ratify the action of the committee; this was seconded by Dr. Hamilton and passed.

L. L. Titche, M. D., Sec.

COMPONENT SOCIETY OFFICERS 1940

Calcasieu Parish

President: Dr. J. Y. Garber, Lake Charles.
Vice-President: Dr. A. L. Clark, Iowa.
Secretary-Treasurer: Dr. Eleanor Cook, Lake Charles.
Delegates: Drs. Ben Goldsmith and Stakely Hatchette, Lake Charles.
Alternates: Drs. C. V. Hatchette and C. O. Frederick, Lake Charles.

Claiborne Parish

President: Dr. J. E. Batchelor, Haynesville.
Vice-President: Dr. P. Gibson, Homer.
Secretary-Treasurer: Dr. C. O. Wolff, Haynesville.
Delegate: Dr. J. W. Featherston, Homer.
Alternate: Dr. B. L. Stinson, Homer.

East Baton Rouge Parish

President: Dr. C. O. Lorio, Baton Rouge.
Vice-President: Dr. J. J. Noto, Baton Rouge.
Secretary-Treasurer: Dr. W. S. Slaughter, Baton Rouge.
Delegates: Drs. J. J. Noto, Carl Weiss, U. S. Hargrove, Baton Rouge.
Alternates: Drs. B. E. Nelken, J. W. McLaurin, C. H. Voss, Baton Rouge.

Lafayette Parish

President: Dr. J. O. Duhon, Lafayette.
Vice-President: Dr. E. H. Kent, Youngsville.
Secretary-Treasurer: Dr. E. E. Guilbeau, Jr., Lafayette.
Delegate: Dr. W. J. Yongue, Lafayette.
Alternate: Dr. L. J. Sonnier, Scott.

Lafourche Parish

President: Dr. G. R. Jones, Lockport.
Vice-President: Dr. P. H. Hanley, Golden Meadow.

Secretary-Treasurer: Dr. P. J. Dansereau, Thibodaux.
Delegate: Dr. C. J. Barker, Thibodaux.
Alternate: Dr. G. R. Jones, Lockport.

MOREHOUSE PARISH

President: Dr. W. V. Garnier, Bastrop.
Vice-President: Dr. P. H. Herron, Oak Ridge.
Secretary-Treasurer: Dr. F. B. Ogden, Bastrop.
Delegate: Dr. W. A. Rodgers, Bastrop.
Alternate: Dr. R. B. Leavell, Bastrop.

OUACHITA PARISH

President: Dr. D. T. Milam, Monroe.
Vice-President: Dr. H. E. Guerriero, Monroe.
Secretary-Treasurer: Dr. L. L. Titche, Monroe.
Delegates: Drs. F. C. Bennett, John Snelling, G. W. Wright, Monroe.
Alternates: Drs. D. M. Moore, M. W. Hunter, W. E. Jones, Monroe.

ST. MARTIN PARISH

President: Dr. J. B. Martin, Jr., Breaux Bridge.
Vice-President: Dr. A. R. Corne, St. Martinville.
Secretary-Treasurer: Dr. S. D. Yongue, Breaux Bridge.
Delegate: Dr. S. D. Yongue, Breaux Bridge.

TRI-PARISH

President: Dr. D. F. Davis, Newellton.
Vice-President from E. Carroll: Dr. G. S. Hopkins, Lake Providence.
Vice-President from W. Carroll: Dr. E. D. Butler, Oak Grove.
Vice-President from Madison: Dr. F. A. DeJean, Tallulah.
Vice-President from Tensas: Dr. J. Whitaker, St. Joseph.
Secretary-Treasurer: Dr. L. P. Coleman, St. Joseph.
Delegate: Dr. B. L. Bailey, Epps.
Alternate: Dr. D. F. Davis, Newellton.

WASHINGTON PARISH

President: Dr. H. A. Stafford, Franklinton.
Vice-President: Dr. W. R. McGehee, Franklinton.
Secretary-Treasurer: Dr. W. C. Brown, Franklinton.
Delegate: Dr. J. S. Desporte, Bogalusa.
Alternate: Dr. A. W. Martin, Bogalusa.

FIFTH DISTRICT

President: Dr. C. E. McConnell, Mangham.
Vice-President: Dr. C. B. Flinn, Monroe.
Secretary-Treasurer: Dr. Ragan Green, Ruston.
Delegate: Dr. J. Q. Graves, Monroe.
Alternate: Dr. C. P. Gray, Jr., Monroe.

TUBERCULOSIS AND PUBLIC HEALTH ASSOCIATION OF LOUISIANA

The annual meeting of this organization was held in Monroe, La., at the Virginia Hotel, January 30-31. In addition to the regular business session, there were presented a series of addresses and papers. Dr. Wm. S. Conklin, of Shreveport, opened the meeting with an x-ray clinic. At the banquet Dr. Paul Turner of Louisville, and Dr. Robert Shaw of Dallas, delivered the addresses.

The session on January 31 was devoted to scientific, economic and social problems. Among those appearing on the program were: Dr. Russell H. Frost, Dr. F. P. Rizzo, Dr. Douglas Williams, Dr. Paul Abramson, Dr. Sydney Jacobs, Dr. Julius L. Wilson, Dr. M. W. Hunter, Miss Emma Maurin, Mrs. Carl Cough, Dr. P. R. Gilmer, and Dr. R. Alec Brown.

THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY PROGRAM

MONDAY, FEBRUARY 26

Morning Session

Emmett L. Irwin, M. D., President: Address of Welcome.

William J. Dieckmann, M. D.: Types and Ambulatory Treatment of Patients with Toxemia of Pregnancy (Lantern Slides).

Henry L. Bockus, M. D.: The Clinical Status of Chronic Gastritis (Lantern Slides).

Eldridge L. Eliason, M. D.: Teamwork in the Treatment of Biliary Disease (Lantern Slides).

Round-table Luncheon

Mayor Robert S. Maestri: Address of Welcome on Behalf of the City of New Orleans.

D. B. Barber, M. D., President of the Louisiana State Medical Society: Address.

G. C. Anderson, M. D., President of The Orleans Parish Medical Society: Address.

Round-table Luncheon Discussions.

Afternoon Session

Henry E. Michelson, M. D.: Dermatology for the General Practitioner (Lantern Slides).

Shields Warren, M. D.: The Pathology of Diabetes (Lantern Slides).

Quitman U. Newell, M. D.: Irradiation Therapy in Gynecology (Lantern Slides).

Francis M. Rackemann, M. D.: The Pathology of Asthma (Lantern Slides).

James S. McLester, M. D.: The Role of the Vitamins in Human Nutrition.

David P. Barr, M. D.: The Relationship of the Pituitary Gland to the Body as a Whole (Lantern Slides).

Evening Session

Elliott C. Cutler, M. D.: Rudolph Matas—Dean of American Surgery.

Rudolph Matas, M. D.: Along the Highways of Medicine in Louisiana.

Reception.

TUESDAY, FEBRUARY 27

Morning Session

Henry E. Michelson, M. D.: The Treatment of Common Skin Diseases (Lantern Slides).

Surgical Pathological Conference: Conducted by Dr. Shields Warren and Dr. Elliott C. Cutler.

Quitman U. Newell, M. D.: Some Remarks on Retrodisplacement of the Uterus (Lantern Slides).

Round-table Luncheons
for Specialty Groups

Blue Room: Medicine, Endocrinology and Gastroenterology.

Gold Room: Surgery and Pathology.

Room G: Obstetrics and Gynecology.

Room H: Allergy and Dermatology.

Afternoon Session

William J. Dieckmann, M. D.: The Diagnosis and Treatment of Hemorrhage in Late Pregnancy (Lantern Slides).

David P. Barr, M. D.: The Nature and Uses of the Male Sex Hormone (Lantern Slides).

Francis M. Rackemann, M. D.: Intrinsic Asthma (Lantern Slides).

Shields Warren, M. D.: The Effects of Radiation on Tumors and Normal Tissues (Lantern Slides).

Eldridge L. Eliason, M. D.: The Surgical Aspects of Peptic Ulcer (Lantern Slides).

Evening Session

James S. McLester, M. D.: Diet in Heart Disease.

Henry L. Bockus, M. D.: Importance of a Comprehensive Survey in the Management of Peptic Ulcer (Lantern Slides).

WEDNESDAY, FEBRUARY 28

Morning Session

William F. Braasch, M. D.: Hypertension and the Surgical Kidney (Lantern Slides).

Donald S. Childs, M. D.: Radiology and the General Practitioner.

Arthur J. Bedell, M. D.: Medical Ophthalmoscopy, Part I (Lantern Slides).

Henry W. Woltman, M. D.: Neuritis (Lantern Slides).

Vilray P. Blair, M. D.: The Importance of Early Clinical Recognition of Cancer of the Face and Mouth (Lantern Slides).

Round-table Luncheon

Symposium: Sulfanilamide and Its Derivatives.

Medicine: Dr. Smith.

Pediatrics: Dr. Toomey.

Otolaryngology: Dr. Mithoefer.

Urology: Dr. Braasch.

Orthopedics: Dr. Smith-Petersen.

Ophthalmology: Dr. Bedell.

Afternoon Session

William Mithoefer, M. D.: What the General Practitioner Should Know Concerning the Nasal Accessory Sinuses.

M. N. Smith-Petersen, M. D.: Arthroplasty of the Hip (Lantern Slides and Motion Picture).

Tour of the new Charity Hospital.

Evening Session

John A. Toomey, M. D.: Chemotherapy in Acute Infectious and Contagious Diseases (Lantern Slides).

Fred M. Smith, M. D.: Cardiac Therapy (Lantern Slides).

THURSDAY, FEBRUARY 29

Morning Session

John A. Toomey, M. D.: The Differential Diagnosis of Acute Meningeal Irritations (Lantern Slides).

M. N. Smith-Petersen, M. D.: Internal Fixation of the Hip (Lantern Slides and Motion Picture).

William Mithoefer, M. D.: Benign Hypothyroidism—Its Frequency and Treatment.

Arthur J. Bedell, M. D.: Medical Ophthalmoscopy, Part II (Lantern Slides).

Round-table Luncheons
for Speciality Groups

Gold Room: Medicine, Neuropsychiatry and Pediatrics.

Room E: Orthopedics and Plastic Surgery.

Room G: Otolaryngology and Ophthalmology.

Room H: Radiology and Urology.

Afternoon Session

Vilray P. Blair, M. D.: The Relation of Restorative Surgery to the Control of Advanced Cancer of the Face and Mouth (Lantern Slides).

Fred M. Smith, M. D.: Diagnosis of Coronary Artery Disease (Lantern Slides).

Henry W. Woltman, M. D.: Headache (Lantern Slides and Motion Picture).

William F. Braasch, M. D.: Clinical Data with Renal Lithiasis (Lantern Slides).

Donald S. Childs, M. D.: Care of the Cancer Patient.

Evening Session

Joint Meeting with The Orleans Parish Medical Society.

Henry W. Woltman, M. D.: Localization of Tumors of the Brain; Role of Electro-encephalography (Moving Picture).

John A. Toomey, M. D.: Complications about the Eye in Acute Infectious and Contagious Diseases (Lantern Slides).

NATIONAL GASTROENTEROLOGICAL ASSOCIATION

The Louisiana Chapter of the National Gastroenterological Association initiated the program of its last monthly meeting with a moving picture of the anatomy of the abdominal viscera. The film was shown through the courtesy of the Petrolagar Laboratories.

Following this Dr. Shushan presented an instance of chronic ulcerative colitis in a young man, elaborating on the x-ray findings of narrowing of the rectum and descending colon, lack of fever, gradual weight loss, and tenderness over colon; he concluded that the condition should be treated as a symptom complex and deserved the benefit of study by a group of specialists, including an allergist, psychiatrist, and gastroenterologist. All laboratory tests should be exhausted, especially the Frei test, ameba cultures, hematologic studies, and hemograms. Dr. Levin considered that surgery holds the secret of best results. Dr. Weinberger

described the present work being done in Crohns' Clinic where good results are being obtained with auto-immunization with colon filtrates. Dr. Fasting recommended that a diet, which is absorbed mostly in the small intestine, be provided following surgery.

Dr. Granger presented a group of x-ray photographs of liver abscesses demonstrating characteristic pathology, all later proved on the table. Defining a liver abscess as a sub-diaphragmatic abscess, may be mostly confused with a perinephritic abscess. In both the hilar glands are enlarged. Perinephritic abscess does not cause obliteration of the cardiophrenic angle in the anteroposterior view, but does cause the posterior costophrenic angle to be obliterated. Pleural effusion is easily differentiated by the fluid level with obliteration of the costophrenic angle anteriorly. Liver abscess causes marked enlargement of the hilar glands; the cardiac angle is obliterated in the anteroposterior view, the costophrenic angle may or may not be affected. Localized bulging of the diaphragm into the lung field is characteristic, and, when an irregularity or roughness of the smooth surface of the diaphragmatic arch is visible, this demonstrates a reaction in the overlying pleura and is a positive sign that rupture of the abscess into the pleural cavity impends, and immediate surgery is demanded. Abscess of the median lobe frequently shows pressure on the lesser curvature of the stomach increasing its crescentic shape, while abscess of the left lobe pushes the stomach closer to the spine and gives a pressure filling defect.

Dr. Gage gave a general outline of accepted causes of peptic ulcer, admitting the possibility of tissue susceptibility, anatomic weakness, vulnerability of the pyloric area being subjected to the presence of the acid gastric chyme. Newer concepts consider gastroduodenal ulceration as merely a symptom of a constitutional disorder with various precipitating causes such as hypersecretion and hyperacidity of the stomach, focal infection, trauma and the possibility of vitamins playing a part.

SOUTHEASTERN SURGICAL CONGRESS

The Southeastern Surgical Congress will hold its eleventh annual assembly in Birmingham, March 11-13, 1940, at the Tutwiler Hotel.

A splendid program has been provided for this meeting with speakers, not only from the South, but from other sections of the country and from Canada. Amongst the familiar names are those of Buie, of Rochester; Curtis, of Columbus; Pack and Ramsdell, of New York City; Herbst, of Chicago, and others. The Louisiana men who will appear on the program are Drs. Michael DeBakey and J. D. Rives, both of New Orleans.

The C. Jeff Miller Memorial Lectureship will be given by one of the late Dr. Miller's closest friends, Dr. J. M. Mason of Birmingham.

NATIONAL CONFERENCE ON MEDICAL SERVICE

The fourteenth annual meeting of the National Conference on Medical Service will be held at the Palmer House, Chicago, on Sunday, February 11, from 10:00 a. m. to 4:30 p. m., at which will be presented a round table on "Group Medical Care and Group Hospitalization Programs." Other features of the program will be papers by Dr. R. G. Leland on "Allocation of Federal Funds to States"; Drs. Morris Fishbein and E. J. McCormick will discuss "Effective Public Relations." There will be a round table on "Medical Welfare Programs" participated in by a number of distinguished speakers. The noonday dinner meeting will be addressed by Paul G. Hoffman, President of the Studebaker Corporation.

All members of the American Medical Association are cordially invited to attend the conference; there will be no registration fee or dues.

AMERICAN ACADEMY OF PEDIATRICS

The annual meeting of Region II of the American Academy of Pediatrics, will be held at the Edgewater Gulf Hotel, at Edgewater Park, Mississippi, on Friday and Saturday, March 15-16, 1940.

Edgewater Park is located between Biloxi and Gulfport, in the very center of what has been properly spoken of as the Riviera of America. It is on the main line of the Louisville and Nashville Railroad and on the famous Old Spanish Trail (U. S. Route 90), which connects Florida with California. Edgewater Park is a semi-tropical, winter pleasure community overlooking the Gulf of Mexico, with more than 300 acres of its own premises devoted to outdoor recreation.

An extraordinarily interesting program has been prepared for the scientific session and in addition to clinical papers, a wide variety of round-table and panel discussions have been planned. Opportunity will likewise be afforded for a delightful recreation on the Gulf Coast during its most attractive season.

In spite of the high quality of service for which the Edgewater Gulf Hotel is famed, the following moderate rates have been quoted for this meeting: $6.50 and $7.00 single, $6.00 and $6.50 each person in double rooms, daily, American plan.

Region II of the Academy of Pediatrics comprises the southern states from Virginia to Texas and a cordial invitation is extended to any physician to attend this meeting.

It is suggested that reservations be made immediately by writing directly to the hotel.

The fifth assembly of the United States Chapter of the International College of Surgeons will be held in Venice, Florida, February 11-14 inclusive. A distinguished list of speakers will appear on the program.

The American College of Physicians announces a series of post-graduate courses to be held in various centers in the United States. Course 1, General Medicine, will be conducted at the University of Michigan Medical School and University Hospital, March 18-30, 1940; Course 2, Medicine in Industry, will be at the Henry Ford Hospital, March 25-30, 1940; Course 3, Allergy, will be held at The Roosevelt Hospital, Department of Allergy, March 19-30, 1940; Course 4, The Blood and the Blood Cell Forming Organs in Disease, will be conducted at the Ohio State University College of Medicine, March 25-29, 1940; Course 5, Cardiovascular Disease, will be held at the State University of Iowa College of Medicine, March 25-30, 1940.

ALPHA OMEGA ALPHA

The annual meeting of Alpha Omega Alpha was held on Monday, January 15. The following members of the Senior class at Tulane were initiated: Mr. W. H. Harris, Jr., Mr. J. M. Fernandez, Miss Nancy Key, Mr. Frank L. Faust, Mr. M. Feldman, Miss Louise Ireland, Miss Adrianne Dorothy McCardell, Mr. Jack P. Michaels, Mr. James Barron.

At the business session the following officers were elected for the coming year: Dr. Lloyd Hanckes, President; Dr. E. Z. Browne, Vice-President; Dr. Alton Ochsner, Counsellor; Dr. Michael DeBakey, Secretary-Treasurer.

NEWS ITEM

It has been announced that the Marine Hospital at Carville will undergo extensive remodeling with many new extensions at a cost of some $3,000,000.

At the December meeting of the Pointe Coupee Parish Medical Society, Dr. Warren Hébert, of New Orleans, gave an interesting and practical lecture on proctology.

There is an opening for a physician in Jackson, Louisiana.

HOTEL DIEU STAFF ELECTIONS

Dr. Lucien A. LeDoux was installed as president of the staff of Hotel Dieu on Monday, January 15, 1940. The other new officers of the staff include: Dr. Daniel J. Murphy, vice-president, and Dr. C. E. Gorman, secretary-treasurer. Dr. LeDoux is chairman of the executive committee on which serve Drs. D. J. Murphy, C. E. Gorman, C. G. Cole, George Taquino, Monte Meyer, W. A. Gillaspie, C. J. Brown, P. A. Kibbe, Louis A. Monte and E. A. Socola.

MERCY HOSPITAL STAFF ELECTIONS

At the regular meeting for the election of officers at the Mercy Hospital, Dr. R. A. Oriol was selected as president of the staff; Dr. H. Ashton Thomas as vice-president; Dr. P. A. Phillips as secretary; Dr. C. F. Bellone as treasurer, while Dr. J. J. Irwin and Dr. T. F. Kirn were selected as additional members of the Board of Directors.

INFECTIOUS DISEASES IN LOUISIANA

For the fiftieth week of the year, which terminated December 16, there were reported to the office of the state epidemiologist, Dr. J. A. O'Hara, the following diseases in figures greater than ten: Eighty-eight cases of syphilis, 61 of pulmonary tuberculosis, 59 of pneumonia, 40 of cancer, 25 of gonorrhea and scarlet fever, and 14 each of diphtheria and chickenpox. Of the rarer diseases, typhus fever was found, one case in East Baton Rouge Parish and one in Vermilion Parish. For the first time in many weeks a disease other than syphilis led the list of reported diseases: This is pneumonia weather so that this disease can be expected to be first. There were 44 cases listed, followed by 42 cases of pulmonary tuberculosis and syphilis, 28 of whooping cough, 23 of cancer, 22 of gonorrhea, 11 each of diphtheria and scarlet fever, and 10 of chickenpox. It is obvious, likewise, that this is also rabbit season. Six cases of tularemia were reported from three different parishes, Calcasieu, Orleans and St. James. One case of typhus fever was reported in each of the following parishes: Acadia, Calcasieu, Orleans and Webster. The old standby, syphilis, was again back in the leading position in the last week of the year, which closed on December 30. There were 123 cases of this disorder reported to Dr. O'Hara. The next diseases in order of frequency were 35 cases of pneumonia, 28 of cancer, 22 of hookworm, 15 each of diphtheria and scarlet fever, 14 each of pulmonary tuberculosis and gonorrhea, and 11 of whooping cough. A case of undulant fever was discovered in St. Mary and one in Orleans Parish. There were only two cases of typhus fever this week, one from Iberia and one from Lafayette. The first week in the year, which ended January 6, found recorded 94 cases of syphilis, 33 of pneumonia, 24 of cancer, 18 of scarlet fever, 17 of chickenpox, 15 of influenza, 14 of pulmonary tuberculosis, and 12 of diphtheria. A case of poliomyelitis was discovered in Lincoln Parish, one of typhus fever in Avoyelles, Orleans and St. Martin parishes. Two cases of tularemia were reported from Orleans Parish. For the second week of the year, completed January 12, the records show that there were 60 new cases of syphilis in Louisiana, 55 of pneumonia, 39 of pulmonary tuberculosis, 32 of influenza, 21 of cancer, 19 of scarlet fever, 15 of chickenpox, and 13 of diphtheria. Typhus fever was reported from Acadia and Calcasieu parishes, one case each. Pointe Coupee discovered an instance of tularemia. It is interesting to note that pneumonia and pulmonary tuberculosis both reported approximately the same number of cases as is found in the five-year average for the second week of the year, cancer having increased considerably, whereas influenza was considerably reduced.

HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of the Census, reports that for the week ending December 16, there was an increase of 29 deaths in the City of New Orleans over the previous week, 180 of the citizens having expired in this period. The deaths were divided 125 white and 55 negro, with 11 deaths in small infants. There was a considerable decrease in the number of people dying in the week of December 23, largely as a result of 35 less deaths in the white population although the negro deaths remained stationary as did the infant deaths. The final week of the year showed a total of 174 deaths, again as a result of more deaths among the white people, 116 having succumbed to some fatal disease, whereas the negro and infant deaths remained the same as the previous week. The new year started very badly in the City of New Orleans: There was a sharp increase in the total number of deaths in the city, jumping up to 225, the largest number for many weeks and 50 more than the three-year average for the corresponding week. These deaths were divided 152 white and 73 negro. A considerable portion was in infants under one year of age, 14 white and 18 negro babies having died this week; a total of 32 as contrasted with the three-year average of 13.

AN EDITORIAL

The following editorial, reprinted from the New Orleans States of January 22, 1940, is so well expressed and so definitely indicative of the sentiments of not only the medical profession but the laity as well, that it was thought it might appropriately be reproduced in the Journal.

"Literally there are no surgical honors left, that, awarded to Dr. Matas, would be new to him. He has won them all, national and international, in the 60 years of his 79 years of life that he has devoted to medicine, and, chiefly, to surgery. There is no important artery in the human body on which he has not operated. The Matas operation is classic in world surgery. The Matas medal had to be created, in his own lifetime, to honor one of whom all other professional honors were past experiences, by the unique privilege of being able in person to present the medal bearing his name to another. Dr. Matas, for one example, is the oldest living ex-president of the American College of Surgeons which made him its guest of honor at this recent dinner.

"And at that dinner, one reason for the fame of Dr. Matas, based on his achievements, stood revealed. In his own talk, he told his hosts that as long as enthusiasm for our work remains, 'we need not worry about anything else.' Whatever success had attended his work, he said, was because always he had been able to keep that enthusiasm for surgery.

"Enthusiastic about one's work at 79! Enthusiastic after 60 years of study and devotion to an ideal that takes no thought of hours or fatigue or strain or hardship! Let the easily bored ones give that a moment's thought. Let the pessimists and defeatists and the what's-the-use folk meditate about that for a little while.

"New Orleans can be proud indeed that such a man calls New Orleans "home" and means it. New Orleans can echo the words of Dr. James Monroe Mason of Birmingham, Ala., regent of the American College of Surgeons, at that dinner to Dr. Matas: 'Those of us who survive you may never see your like again!'"

CORRESPONDENCE

American Medical Association
Bureau of Legal Medicine and Legislation

535 North Dearborn Street, Chicago,
January 9, 1940.

Dr. P. T. Talbot, Secretary,
Louisiana State Medical Society,
1430 Tulane Avenue,
New Orleans, Louisiana.

Dear Dr. Talbot:

President Roosevelt in the budget for the fiscal year of 1941 that he submitted to Congress, January 4, included an item of $600,000 for the acquisition of a site for a new building in which to house the vast collection of invaluable medical literature comprising the Army Medical Library and Museum. A copy of the pertinent budget item is enclosed.

The budget is before the Committee on Appropriations of the House of Representatives of which Representative Joachim O. Fernandez of your State is a member. Before the sum recommended by the President for the site for the new building can become available, it is necessary that the item be included in an appropriate appropriation bill. I believe it will be helpful toward that end if the Louisiana State Medical Society urge Representative Fernandez to exert his influence to have the House Committee on Appropriations, in which appropriation bills originate, take the necessary steps to make available the recommended sum as expeditiously as practicable.

The House of Delegates has repeatedly recognized the urgent need for this new building and has passed resolutions petitioning Congress and appropriate federal officials to act with respect to the matter.

Yours truly,
J. W. Holloway, Jr.,
Acting Director.

WILKES H. KNOLLE, M. D.

(1870-1940)

One of the deans of the medical profession in New Orleans passed away January 7 at his home in New Orleans. Dr. Wilkes H. Knolle was known

to all of the older and many of the younger members of the Society. He had been President of the Orleans Parish Society for two terms, 1915 and 1916, and later President of the Louisiana State Medical Society for the year 1918-19. Born in 1870, graduating from Tulane University in 1891, Dr. Knolle served his internship and started the practice of medicine in 1892, continuing uninterruptedly until the time of his last sickness. Quiet, kind, considerate and a good friend, he will be mourned by innumerable patients and colleagues.

SAMBOLA J. COUVILLON, M. D.
(1879-1940)

Dr. S. J. Couvillon, coroner of Avoyelles Parish and former mayor of Moreauville, died Sunday, January 21, at the age of 60. Dr. Couvillon was one of the most prominent physicians in the central part of the state. He was active in the parish society and in the State Medical Society; he served as first vice-president of this latter organization in 1931 and last year at the annual meeting presented the tribute to the deceased members.

The death of this outstanding gentleman and physician will be mourned by a large circle of friends and patients.

LEONHARD E. DEVRON, M. D.
(1901-1939)

Dr. Leonhard E. Devron died suddenly at his residence in New Orleans on December 25, 1939. Dr. Devron graduated from Tulane University in 1925. He was a member of the Stars and Bars Chapter of Alpha Omega Alpha, honorary society. One of the younger group of physicians, Dr. Devron was well known for his agreeable manner and unfailing courtesy. He will be missed by his many friends.

WOMAN'S AUXILIARY
Louisiana State Medical Society

President—Mrs. S. M. Blackshear, New Orleans.

President-elect—Mrs. Roy Carl Young, Covington.

First Vice-President—Mrs. H. O. Barker, Alexandria.

Second Vice-President—Mrs. C. U. Johnson, Monroe.

Third Vice-President—Mrs. W. P. Bordelon, Lake Charles.

Fourth Vice-President—Mrs. T. E. Strain, Shreveport.

Treasurer—Mrs. W. R. Buffington, New Orleans.

Recording Secretary—Mrs. E. C. Melton, Plaquemine.

Corresponding Secretary—Mrs. C. R. Hume, New Orleans.

Parliamentarian—Mrs. A. A. Herold, Shreveport.

Historian—Mrs. Joseph Bath, Natchitoches.

To those members of the Woman's Auxiliary who confine their reading to this section of the Journal and to those who read the editorials, I would suggest that the former read and the latter re-read a striking editorial on state medicine, a timely and pertinent subject of interest to the wives of the medical profession as well as to their husbands. Dr. Musser has given us permission to reprint herewith this editorial, which appeared in the December issue of 1939.

STATE MEDICINE

A recent address by Dr. Van Etten, President-elect of the American Medical Association, delivered before one of the medical societies of the State of New York, is well worthy of quotation, comment and paraphrasing. This chief representative of organized medicine asked the question: Does the American medical man want the medicine of England, of Hitler or Stalin, or does he want American medicine? He wants to know if the patient is desirous of having personal medical care and if he wants to choose his own doctor. He asks the patient if he wants a doctor to be an employer of the state, working limited hours or days, or does the patient want a doctor to work for him when he needs him.

The statement is made by inspired propagandists that forty million people in this country suffer from a lack of medical care. The pronouncer of such a statement, which obviously is untrue and false, prescribes socialized medicine as carried out in Europe. As a matter of fact any person in this country, almost without exception, can have emergency medical care free of cost any time of the day or night. Every large city, most small towns and rural communities have hospital facilities that are available to people whose incomes are small. A generous medical profession cares for these people free of charge, or charges according to their means. In refuting the distorted statement that forty million people do not get medical care, how can one explain the fact that the death rates have been and still are steadily falling?

Of course there are a few communities in which medical care may be inadequate but the people in these same communities are also poorly fed, clothed and housed.

The health of the individual and the health of the community would be enhanced materially by slum clearance in the larger centers. In the rural areas teaching the people how properly to live would do much for their health.

The propagandists are making derogatory statements concerning the medical profession which may weaken the medical profession in its contact with patients, a most unfortunate situation because trust and confidence of the patient in his doctor are the first essentials for proper care of the sick man. The aspersions cast against the profession are unfairly presented and are untrue for the most part. As a matter of fact organized medicine

stands for the prevention of disease, the protection of children from communicable diseases, the care of deformed and crippled children, the prevention of blindness in the child and for his nutritional improvement. The medical profession stands for the attempted reduction of communicable venereal disease, it stands for proper sanitation, for good food and drug laws and good housing. Absolutely the medical man's function lies in his preservation as the family physician, the guider and helper of innumerable families. He sees the difficulties state education meets, particularly when it has grown too expensive for a community, thousands of teachers unpaid and out of work, only a few new teachers appointed, expensive political manipulations and other evils. The doctor in his practice occasionally considers state medicine in terms of salaried relief from financial worries, but the doctor makes a living and in making this living he forgets about finances in the interest of his profession. He realizes and appreciates that it is the most fascinating profession in the world and he loves it. All he asks is a fair return for the efforts that he makes in combating disease and helping patients.

PARISH AUXILIARY NEWS

ORLEANS

In January the Orleans Parish Auxiliary finished its fiscal year under the able leadership of Mrs. C. Grenes Cole. We submit herewith a brief review of some accomplishments of which Mrs. Cole and her co-workers may be justly proud.

Each monthly meeting begins with a short business session when committee reports are read and recommendations from the executive board given. A program follows, something of general interest; the Auxiliary pays for these entertainments. The meeting then closes with a tea.

This past year the Auxiliary has been hostess to the American College of Physicians and to our own New Orleans Graduate Assembly, each time entertaining medical men and their wives from far and near. At the same time other committees have been busy working: The Red Cross Unit, one of the largest in the city, meets every week to make dressings and take class instruction, with Mrs. Frank Chalaron, chairman. The committee which picks up old or donated clothes to be given to Tulane or L. S. U. medical students, Mrs. Leon J. Menville, chairman, has fortunately been able to fill every call. The sample committee, Mrs. Joseph Brierre, chairman, reports all samples collected from the offices of physicians and taken to free clinics and orphanages were very much needed. These samples are never used except under the direction of the physician in charge of the institution.

The committee on periodic health examination with Mrs. H. B. Gessner, chairman, has helped to remind the members of this important duty to themselves, and perhaps has encouraged others. The committee for selling Christmas seals for tuberculosis and the one for Community Chest Drive have done their parts.

One of the most worthwhile endeavors that any organized group may undertake is to help their own. The Orleans Parish Auxiliary has made a step in that direction by sending aid to an indigent widow through a special commemoration fund. Mrs. J. M. Davidson, chairman, has given this her personal attention.

The following officers will serve for 1940:

President	Mrs. A. F. Hebert
President-elect	Mrs. J. W. Warren
First Vice-President	Mrs. G. J. Taquino
Second Vice-President	Mrs. J. E. Brierre
Third Vice-President	Mrs. W. H. Harris
Fourth Vice-President	Mrs. F. J. Chalaron
Recording Secretary	Mrs. C. R. Hume
Corresponding Secretary	Mrs. R. J. Christman
Treasurer	Mrs. D. J. Murphy
Historian	Mrs. Arthur Weil
Parliamentarian	Mrs. N. H. Polmer
Publicity	Mrs. D. C. Browne

Mrs. Edwin R. Guidry,
Publicity Chairman.

TANGIPAHOA

The Tangipahoa Parish Auxiliary was joined by members of the medical society at a banquet given in December to celebrate its first year of organization. The affair followed a business meeting where reports of the year's work were read. With new members being added and prospects of others, this group should be proud of its accomplishments.

Mrs. M. C. Wiginton, of Hammond, has been the president during this important year, leading the group into many worthwhile fields of activity.

At the January meeting, the medical society will send a doctor to speak on state medicine; guests have been invited from the other women's clubs. This meeting is being held in accordance with an appeal sent by Mrs. S. M. Blackshear, State President, to all Louisiana auxiliaries.

AMERICAN COLLEGE OF SURGEONS

The Southern Sectional Meeting of the American College of Surgeons brought to New Orleans on January 17, 18 and 19, about five hundred surgeons and their wives, from the states of Louisiana, Mississippi, Alabama, Georgia, Florida, Tennessee, Kentucky, Missouri, Arkansas, Texas and Oklahoma.

Dr. Rudolph Matas, renowned surgeon and oldest living Past President of the College, was honored

at a dinner given by this distinguished group, who lauded him "one of the greatest figures of medical history." New Orleans' surgeons prominent in the College are Dr. Alton Ochsner, a member of the Board of Regents, and Dr. Hilliard E. Miller, one of the Governors, besides many leading surgeons who are Fellows of the College.

Although this group does not have an Auxiliary, members of the Orleans Parish Auxiliary did their part in making the visitors welcome.

Respectfully submitted,

Mrs. Edgar Burns,
Press and Publicity Chairman.

BOOK REVIEWS

Roentgen Technique: By Clyde McNeill, M. D. Springfield and Baltimore, Charles C. Thomas, 1939. Pp. 315. Price $5.00.

While many works on roentgen technic and positions are available, this volume is unique in the arrangements of the subject matter. Since roentgen ray apparatus and exposure technic will become obsolete in a relatively short time, very little space is devoted to these subjects by the author.

When the book is opened, the two pages facing the reader contain a complete description of one position. The illustrations appear on the left and the descriptive matter on the right.

This work is divided into five parts. Part I deals with positions of the head and is probably the most outstanding portion of the book as it includes practically all of the many positions possible in the roentgen study of the skull, sinuses and mastoids. Line drawings are employed in the illustrations of these positions.

Positions of the extremities are considered in Part II. Additional views besides the usual anteroposterior and lateral are included.

Part III, which describes the positions employed in the roentgen study of the trunk, contains a description of the kymogram, the tomogram, the visualization of the chambers of the heart and utero-salpinogram. The most commonly employed methods of pelvimetry and cephalometry are also discussed in this part.

Part IV contains tables of various technics, including those for roentgenography with the rotating anode tube. The section of this part dealing with the description of apparatus and physics is concise.

The illustrations are excellent, and the text is clear. References have been included, and, as a whole, this volume should prove of value to roentgenologists and x-ray technicians.

J. N. Ané, M. D.

Epidemic Encephalitis: Third Report of the Matheson Commission. New York, Columbia Univ. Pr., 1939. Pp. 493. Price $3.00.

In this volume is reported the results of the investigations and compilations of the Matheson Commission, which was founded through the munificence of Doctor William J. Matheson, in 1927, for the study of epidemic encephalitis. It contains a wealth of thoroughly sound and up-to-date material obtained from a long continued follow-up of a large number of cases and an exceedingly careful survey of the literature. Some 300 pages were required merely to list the bibliography.

Inasmuch as this is the Third Report and the work of the Commission continues, the reader is warned against regarding it as a finished product and against assuming that finality has been reached in its deliberations and conclusions.

The Commission believes that the attack on the problem of epidemic encephalitis should be intensified in the laboratory approach, particularly as regards the investigation of the virus diseases of the nervous system and that a more intensive study of the experimental phases should be made and all important leads pursued.

As to the treatment of the chronic stage of epidemic encephalitis, it is interesting to observe that all forms of psychotherapy, including hypnotism, are employed and that re-education is thought to be one of the most important factors in the rehabilitation of those suffering with residual defects.

It is believed that more and more time and more and more research alone can solve this problem and that, so far as is known, the Matheson Commission is the only unit continuously and intensively studying this disease.

This contribution of the Matheson Commission is significant and a valuable one to medical science. The Columbia University Press is entitled to praise for the excellence of the artistic make-up of the book.

C. P. May, M. D.

Diseases of the Skin: By Richard L. Sutton, M. D., Sc. D., L. L. D., F. R. S. (Edin.), and Richard L. Sutton, Jr., A. M., M. D., L. R. C. P. (Edin.). St. Louis, C. V. Mosby Company, 1939. Pp. 1,549. Price $15.00.

This revised, enlarged and reset tenth edition has grown to be quite a large volume of over 1500 pages. There has been a radical departure in the arrangement of material with a trend toward being a bit dogmatic in regard to opinions as to treatment. There is also a strong tendency

to take odds with other authors on closely contested differences in classifications, which in the opinion of the reviewer adds to the value of the text. The chapters on diagnosis, treatment, and care of malignancies are excellent. The chapters on the treatment of acne should appeal to all because of the authors' straightforward manner of presentation. The comprehensive description of serologic diagnosis of syphilis contains the latest opinions, methods and safe-guards. The chapter, "Diseases Due to the Higher Fungi," including their culture, identification and treatment, is very complete.

Many new photographs, colored plates of photographs and microphotographs, along with a new departure in the bibliography (that of adding comments by the authors after each reference) have greatly enhanced the value of the text for teaching students or as a reference book.

Although a massive volume, what more could one desire than a complete book shelf on skin diseases in one cover. Its authors and publishers should be congratulated.

M. T. VAN STUDDIFORD, M. D.

The Neurogenic Bladder: Frederick C. McLellan, M. D. Baltimore, Charles C. Thomas, 1939. Pp. 197. Price $4.00.

This splendid monograph presents the problem of the neurogenic bladder in correlated and lucid form. The volume as such is certain to find a well-merited place in the libraries of both urologists and neurologists. The author begins his book with a detailed description of the normal bladder, the anatomy of its innervation, and the current concepts of its neurophysiology. This is followed by a description of the control of bladder function and the act of micturition. The remainder of the book is concerned with the classification of the neurogenic bladder, the application of cystometry, and a brief resumé of treatment. Chapters also are devoted to myogenic vesical dysfunction and enuresis. The appendix contains the summary of the findings in 100 cases of neurogenic bladder together with 57 figures and chapters.

This work will be of primary interest to those who delight in a scientific approach to clinical problems.

The only adverse criticism, in this reviewer's opinion, is the relegation of the charts to the latter pages of the book. Since study of these charts is essential to complete appreciation of the text, one must constantly break the flow of thought in order to search for a given page. It would seem that the value of the diagrams would be enhanced by interspersing them in the text itself.

I. J. GLASSBERG, M. D.

Sclerosing Therapy: Edited by Frank C. Yeomans, M. D., F. A. C. S., M. R. S., (Lond. Hon.). Baltimore, The Williams & Wilkins Co., 1939. Pp. 337. Price $6.00.

This book considers the treatment of hernia, hydrocele, varicose veins, and hemorrhoids by sclerosing methods. In each instance the collaborators, Arthur F. Bratrud on hernia, George Hock on hydrocele, Harold Skelley on varicose veins, and Frank Yeomans on hemorrhoids, have expended a tremendous amount of work and study in the preparation of their respective sections. There is a consideration of the historical aspect, the anatomy, the etiology, and clinical aspects, besides a more extensive space devoted to the treatment of each condition. The types of sclerosing solution and their advantages are discussed in detail and the technic of examination and injection are amply explicit without being unnecessarily repetitive.

This book decidedly favors sclerosing therapy and this might be considered one of its only faults. It seems to present an unbalanced enthusiasm for injection technic. It is true, that in the hands of certain men, injection therapy has proved to be satisfactory and the comparative results with those of other methods entirely favorable. On the other hand, many able men have denounced this type of therapy for hernia and varicose veins except in a minority of cases which are selected for such therapy. And many equally able men have stated that in their hands injection therapy for hernia fails to give results which might be considered comparatively satisfactory with those obtained by surgery. Other observers, either tacitly by failing to adopt the method after sufficient try, or actively by denouncing it in the literature, have pronounced their disapproval of such therapy. In this day when the physiology of varicose veins and the tremendous back pressure known to be present in the well developed case is appreciated, the indication for ligation of the internal saphenous vein listed by the author, namely "when it is impossible to obliterate the saphenous by injection therapy because of obesity," is open to vigorous question if not outright criticism. Likewise questionable is the conclusion that large and extensive varicosities with a positive Trendelenburg test can be satisfactorily cared for with injections alone if it is possible to sclerose the great saphenous in its entire length. The space allotted to the consideration of ligation combined with injection is relatively small and it might be considered inadequate since today the most accepted form of therapy for those cases which have a positive Trendelenburg reaction is ligation and injection. No consideration is given to other surgical methods for the treatment of varicose veins. Though the discussion of injection treatment of hernia is very detailed, there is no space allotted whatsoever to the operative treatment of hernia. No consideration is given surgical treatment of hydrocele or varicosities.

This volume is well worth the study of anyone who is using injection therapy and an adjunct to surgery in the treatment of these conditions. However, the reviewer believes that a truer evaluation of the status of injection therapy for these conditions can better be appreciated by the study of surgical text in conjunction with this volume.

HOWARD MAHORNER, M. D.

Dysenteric Disorders: By Philip Manson-Bahr, C. M. G., D. S. O., M. D., F. R. C. P. Baltimore, The Williams & Wilkins Company, 1939. Pp. 613; illus. Price $8.00.

This work of nearly 600 pages, the clinical part of which is based on about 1,400 cases, divides the dysenteries into bacillary, protozoal, and helminthic, and has sections on the infective diarrheas, the steatorrheas, affections of the colon resembling dysentery, affections resembling dysentery, and other causes of diarrhea and dysenteriform symptoms. There is an appendix, one chapter of which deals with intestinal protozoa and another with laboratory methods. There is an extensive bibliography. The book is rich in illustrations, largely original, including a number of colored plates which should prove very useful.

The text considers the various clinical entities in a systematic manner and gives especially full consideration to history and world distribution, where these are of interest. As befits a book intended primarily for clinicians, treatment is discussed fully.

In the treatment of bacillary dysentery, the author regards serum as the mainstay, and, in the chronic form, when medical measures appear likely to fail, surgery is recommended (appendicostomy, valvular cecostomy, ileostomy). The difficulties and uncertainties of prophylactic vaccination are discussed, though the reader is left in doubt whether or not it should be employed, but vaccines are advocated in the treatment of the chronic bacillary carrier condition.

Under the head of treatment of amebic dysentery there is found the following statement (p. 188) with which the reviewer agrees: "It may justly be claimed that, at the present day, medical science has more complete control of *E. histolytica* and its effects than of any other human parasitic infection." Surgical treatment of the liver manifestations of amebiasis is held to be seldom necessary if proper medicinal treatment has been used.

The nervous phenomena seen in mucous colitis "may be the cause or the result of the disease." The "psychotherapeutic approach" in treatment is advocated—confidence in the ability of the physician to aid, and a minimizing of the danger of the disease.

The author stresses the uncertain etiology of idiopathic ulcerative colitis and regards the treatment of this disease as presenting problems more difficult than elsewhere in the group of dysenteries; he has had little success with serum-vaccine therapy.

The preventive medicine aspects of the various clinical entities are discussed as fully as existing knowledge warrants.

The author regards flies as important agents in the transmission of bacillary dysentery and is impressed by the strength of the evidence of water transmission of amebic dysentery. The outbreak of epidemic amebic dysentery in Chicago (1933) is accepted, as it should be, as being only an unusual occurrence.

One might easily criticize minor details, such as the author's opinion that stercoralis is harmless, though directions for treatment are given in the next paragraph; the pathologist may not understand what is meant by "toxic staining of the viscera," and he may have some difficulty in grasping the description of the stage of necrosis in bacillary dysentery (p. 49) but, on the whole, the author has contributed a volume which should be of value to practitioners everywhere, and especially to those in the tropics. This is what we have a right to expect of one with the rich experiences of Dr. Manson-Bahr.

G. W. MCCOY, M. D.

The Fight on Cancer: By Clarence C. Little, Sc. D. New York, The American Society for the Control of Cancer, Inc., 1939. Pp. 31. Price $ .10.

This is a little pamphlet which has been prepared by the Managing Director of the Society for the Control of Cancer. It is for the use of the general public and points out to the laity the important facts concerning signs and symptoms of cancer. Also it indicates what is being accomplished by the Women's Field Army and shows what activities should be undertaken in order to prevent cancer, most important of which is the periodic health examination.

The booklet might well be a New Year's gift of the doctor to his patients of mid-life.

J. H. MUSSER, M. D.

Tumors of the Skin, Benign and Malignant: By Joseph Jordan Eller, M. D. Philadelphia, Lea & Febiger, 1939. Pp. 607. Price $10.00.

This text outlines the present day knowledge of benign and malignant tumors of the skin in a concise, orderly, and comprehensive manner, giving a description of the tumor with its histology and etiology, as well as the differential diagnosis, prognosis, and treatment.

Benign tumors are systematically subdivided into groups: Tumors of connective tissue origin, those originating from muscle or nerve tissue, nevi and other developmental disturbances of the skin, tumors of infectious origin, and precancerous conditions of the skin. This portion of the text affords a quick, ready reference in regard to the common tumors of the skin and includes

very complete bibliographies. Histopathologic illustrations and photographs of the gross lesions show the relationship of treatment to pathology.

Ample space is allotted to the discussion of the general treatment of cutaneous carcinoma by (1) surgery by use of the scalpel, electric knife or electrocoagulation; (2) irradiation with roentgen rays, topical radium or interstitial irradiation (radium needles or radon seeds).

The appendix contains practical data on radiation physics and biology, and furnishes various dosage and absorption tables for radium, radon, and roentgen therapy.

A special chapter on cutaneous surgery and plastic repair of skin tumors adds just the proper general information to make the volume of value to both the specialist and the practitioner.

The answers to the questions of an increasingly "tumor conscious" laity are readily accessible in this book, and its use for this phase of practice only would well justify its publication. The author has more than accomplished his object in writing such a volume and it will long remain a valuable text.

M. T. VAN STUDDIFORD, M. D.

Epidemiology in Country Practice: By William Norman Pickles, M. D. (Lond.). Baltimore, The Williams & Wilkins Company, 1939. Pp. 110. Price $2.50.

The preface of this little volume is written by Major Greenwood, the distinguished statistician, professor of epidemiology and vital statistics in the University of London. Three sentences from this preface may be quoted: "I know that in some kinds of research professionalism is inevitable. Even in Epidemiology we must have 'experts' of different kinds. But these experts are no wiser than amateurs, and the mere fact that they are experts deprives them of many fruitful opportunities."

The author points out that the practitioner in rural areas has better opportunities for studying his cases and epidemics from the point of view of epidemiology than has his urban colleague, and makes a plea for taking advantage of such opportunities.

Dr. Pickles practices in Wensleydale, England, and notes that the epidemic of influenza of 1918 gave a mortality in that community exceeding anything previously recorded. The only epidemic diseases discussed are those that have been spread by personal contact and are from the writer's experience as a health officer. The tendency on the part of the public to demand the closing of schools as a means of controlling an epidemic is noted, and the opinion is expressed that if churches, movies, and the like were also closed that, too, might serve a useful purpose, but, as the author indicates, this does not appeal to the public.

The author quotes Pasteur's often repeated remark that "in the fields of observation chance only favours the mind which is prepared." Very interesting are the author's conclusions on incubation periods based on his own experience. Influenza is "never less than two and never more than three days"; measles, twelve days; Sonne dysentery, two days. He has noted the varying clinical conditions that may develop from contact with a single case of scarlet fever, viz: sore throat, erysipelas, axillary abscess and cellulitis. He believes that in rural districts scarlet fever is better treated at home than in a hospital. So far as etiology is concerned, rather convincing evidence is presented for the practical identity of chickenpox and herpes zoster,—a matter generally considered rather controversial.

The author records an epidemic of Sonne dysentery which he regards as having been spread by soiled towels. There is a rather full discussion of epidemic catarrhal jaundice, also of epidemic myalgia (devil's grippe, Bornholm disease) which gave the author much difficulty in making a correct diagnosis.

The little volume will be of chief interest to students of factors influencing the spread of communicable diseases, although there are many paragraphs of interest to clinicians as well.

G. W. MCCOY, M. D.

PUBLICATIONS RECEIVED

The Blakiston Company, Philadelphia; Medicolegal & Industrial Toxicology, Criminal Investigation, Occupational Diseases, by Henry J. Eilmann, Ph.D.

Harvard University Press, Cambridge, Mass.: Virus and Rickettsial Diseases with Especial Consideration of Their Public Health Significance, A Symposium held at the Harvard School of Public Health, June, 1939.

Paul B. Hoeber, Inc., New York City: Handbook of Skin Diseases by Leon Hugh Warren, B. A., M. D., M. Sc. (Med.).

Reynal & Hitchcock, Inc., New York City: The Patient's Dilemma by Hugh Cabot, M. D.

Frederick A. Stokes Company, New York City: You and Heredity by Amram Scheinfeld assisted in the genetic sections by Morton D. Schweitzer, Ph. D.

The University of Wisconsin Press, Madison: A Symposium on the Blood and Blood-forming Organs.

The Williams & Wilkins Company, Baltimore: Demonstrations of Physical Signs in Clinical Surgery by Hamilton Bailey, F. R. C. S. (Eng.). Surgical Diagnosis by Stephen Power, M. D. (Lond.), F. R. S. C. (Eng.). Massage and Remedial Exercises in Medical and Surgical Conditions by Noel M. Tidy.